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# PUBLISHERS NOT EXEMPT.

AMONG those using letter paper and envelopes, and occasionally paper for other purposes, we have heard complaints regarding the present excessive cost of paper, but when you think of it, where does the publisher stand in this matter, he who was paying 4¼c per pound for paper that he is now obliged to pay for, at the rate of 10 cents or a little over, per pound.

Why complain at a slight additional cost, when your printer delivers paper, envelopes, and your other paper needed for commercial purposes.

Now on top of this tremendous increase, an increase, the results of which are falling wholly upon the shoulders of publishers, comes a "rider" on the post office bill, from that fertile mind of, but we fear not rational thinker, Representative Randall, of California.

Mr. Randall desires to see magazine postal rates placed on the basis of a figure as high as 6 cents a pound for postage, when the magazines travel more than 1800 miles, or 5 cents a pound 1400 to 1800 miles, 4 cents a pound 1000 to 1400 miles, 3 cents per pound, 600 to 1000 miles, 2 cents a pound 300 to 600 miles, 1 cent a pound under 300 miles, but at the same time to continue to be subject to all the delays that must be accepted when mailing under what has been termed the second-class privilege.

In other words, a high-handed discrimination is purposed against Americans, citizens of our country, who do not live near to publishing centers.

It must be always the case that but a few centers are found most desirable, from which to publish national magazines, whether they be trade or general magazines. Therefore, it must come to this, that the merchant, the manufacturer, or the agriculturist, by Mr. Randall's proposition, who dares to live 1800 miles away from the natural publishing centers, must either pay for that privilege, or deprive himself of the advantages to be derived from having such magazines as are best suited to his purposes.

Our public utilities are today subject to regulation. They are not allowed to overcharge, nor are they allowed to stamp out legitimate enterprises. No such protection is offered to the publishers, against inflicted harm at the hands of the general paper enterprise.

He is beset on the one side by that condition, and on the other, by the government itself in an attempt to further place upon him an unwarrantable burden; or to discriminate against the interests of individuals who desire knowledge of events, but who, having gone into the remoter places, thus to build up those sections in our great country, must take unfair consequences.

We note that Representative Randall does not include the dialy newspaper, he is a newspaper publisher, it is said, in his attempt to make up deficits in the post office department, deficits perhaps due to no small degree to free mailing privileges enjoyed by those who consider it a right, because they are public servants.

The attempt is not to increase the cost of mailing catalogues and other classes of similar matter, which today, on the same basis we judge either cost the mailer too little for long hauls, or too much for short hauls.

Is it wise and is it right to turn upon and to throttle in any sense, those mediums that are disseminating information of notable value in the many fields of commercialism?

Lucius S. Bigelow

e title will hereafter be

777961

# NATURAL GAS AND GASOLINE JOURNAL

Vol. II JANUARY 1917 No. 1

## ANNOUNCEMENT

A FIELD WITHOUT A JOURNAL, is like a country without a flag. Therefore the new "Standard."

The Natural Gas Gasoline industry has by leaps and bounds come into its own. Yet, as known in its two forms namely, "*Natural Gas Gasoline*" and "*Casinghead Gas Gasoline*" it is clearly an integral part of the parent field Natural Gas.

Therefore nothing could be more fitting, than that The Natural Gas Journal should add the word "Gasoline" to its title and publish the subject matter of this newer field, in its pages.

The name of this magazine will remain as heretofore but for the addition of the word "Gasoline."

Under the scope of the new title, the expanding industry will in subsequent issues, find its broadening interests well cared for in the pages of the "Journal."

THE PUBLISHERS

*Buffalo, N. Y., January, 1917*

Mr. Burrell also recently lectured on the subject of Technology of the Natural Gas Gasoline Industry, before the Franklin Institute of Philadelphia, and told in detal of the chemical, physical and engineering problems involved. The two principle processes, the absorption and compression processes were discussed in detail, covering the oil and gas in the well, testing of the gas, erection of plants, cost of plants, operation of plants and characteristics, handling and blending of the product.

Mr. Burrell brought out the fact that natural gas is the most ideal fuel there is; that between 9 and 10% of the population use it; one per cent. of the acreage of the United States produces it; 9½% of the towns and cities of the United States use it; as between natural gas and artificial gas, 78 per cent. of that sold is natural gas, and 22 per cent. is artificial gas; it is almost twice as valuable as artificial gas but sells for one-third as much; the average number of domestic gas consumers dependent on each gas well in the country is 58; about 600,000,000,000 cubic feet of natural gas were sold in 1915; 65 per cent. of the natural gas used is by industrial consumers and 35 per cent. by domestic consumers; West Virginia produces 40% of the total natural gas and consumes 16%; Pennsylvania produces 22% and consumes 31%; Ohio produces 10% and consumes 22%.

The rise in price of natural gas has not been any where near the rise in price of other commodities. A higher price to the domestic consumer would make it possible to restrict the sale of gas to such purpose and eliminate the industrial consumer and thus conserve the supply. Natural gas reservoirs in the ground are simply deposits that are not being renewed and once tapped and drained new reservoirs have to be found.

In speaking of gasoline Mr. Burrell said a satisfactory substitute for it had not been found, and that the growing shortage was causing grave concern in the minds of producers of it. He said many substitutes had been advertised and given publicity.

He said that of all the substitutes thus far advertised; none of these had materialized. One gotten up by a man living in Farmingdale, Long Island, Island, whereby he produced a transparent green liquid, a few drops of which would run an automobile economically; another by two men in St. Louis, Mo., who invented a chemical compound to mix with kerosene; one by an old man, aged 73, who invented motorzene; another by a St. Louis man who skillfully blended three chemicals with kerosene so they could not be detected; one by a Cleveland policeman who mixes a fluid selling for six cents a gallon with water and obtained a mixture slightly more than 600% more efficient than gasoline; one by a preacher of Wilkinsburg, Pa., who produced a gasoline substitute to be sold for six cents a gallon; and one by a cobbler in McKeesport, Pa., who gave "Zoline" to the world, and prepared it by mixing substances cheaply obtained at drug stores with water, etc. Mr. Burrell added that they all must have been very inflammable substitutes indeed for they entirely burned up in their flare of publicity.

Mr. Burrell said that three substitutes for gasoline most prominently considered, are kerosene, alcohol, and benzole. Regarding kerosene he stated that gasoline will have to reach a prohibitive figure before it is used extensively in pleasure cars. It is too hard a car with it in cold weather; carburetors have to be changed to use it; gasoline has to be used to start the car satisfactorily; it does not dry up if spilled, like gasoline; it carbonizes the cylinders, etc. Besides, it comes from the same source as gasoline, i. e., crude oil, and the supply of crude oil is getting short.

A great difficulty in the way of benzole (made from coal) for permanent relief, is the shortage of benzole itself. It is made now at the rate of 50,000,000 gallons a year. Gasoline is used at the rate of 2,000,000,000, gallons a year. Further it is hard to start a car with benzole also; it freezes at 41° F., and it provides a vile exhaust.

Alcohol is expensive to make. Gasoline has sold as high as 40 cents a gallon in England and alcohol has not been used. It is also hard to start a car with alcohol. In fact automobiles have developed around gasoline as a fuel, and car owners are loathe to give it up with its many advantages.

## KANSAS NATURAL A STUMBLING BLOCK.

JUDGE FLANNELLY in Kansas, and the Governor of that state, Governor Capper, have had disagreements, and the "Kansas Natural" has been the stumbling-block. There seems to be general rejoicing at the Governor's headquarters, and among his friends, that no longer is Judge Flannelly a judicial head. There are others, too, who are glad that the Judge has vacated the chair he has filled for years.

It is unfortunate that one should retire from an office of that nature without the privilege of enjoying the plaudits of his states-people in general, or especially those in high places.

## GASOLINE FROM NATURAL GAS.

ACCORDING to a report made by the Geological Survey at Washington, a vast increase in the production of gasoline from natural gas resulted from expansion of the casing head gasoline industry during the last calendar year. During the year 65,364,665 gallons of raw gasoline was extracted, a gain of 22,712,033 gallons, or 53 per cent. over 1914.

An average price of 7.9 cents a gallon for unblended product was received. The entire market value of the year's output was $5,150,823. It is estimated that 24,000,000,000 cubic feet of natural gas was utilized in the manufacture, with the average recovery of 2.57 gallons of gasoline per thousand feet.

## ESTIMATING CAPITAL REQUIREMENTS

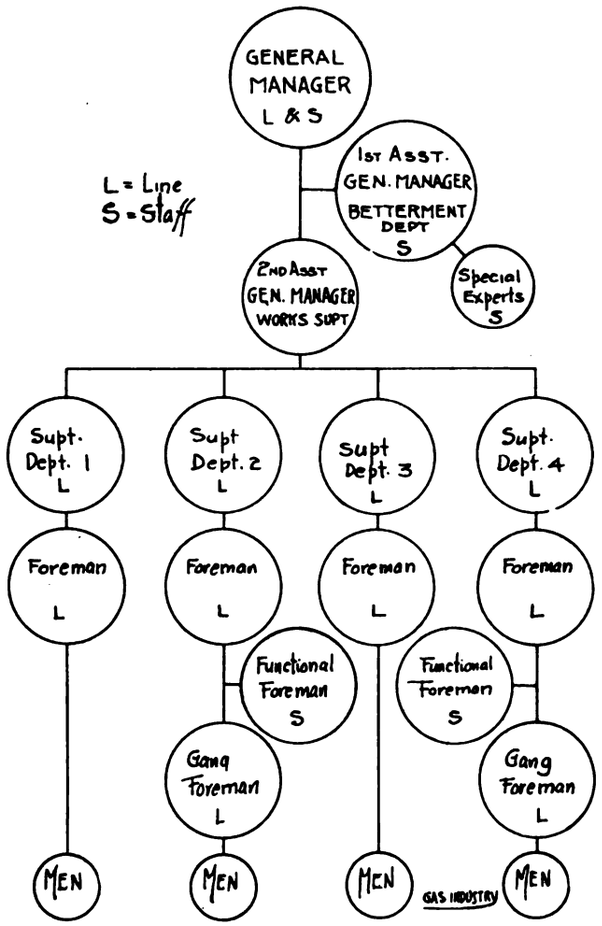
AIR COMPRESSORS

## ORGANIZATION.

EDWARD L. RYERSON, JR.

THE line and staff type of organization produces and combines most effectively and scientifically the functions of supervision and knowledge. The necessity for the division of function can not be too strongly emphasized, as the most highly developed staff positions must be kept entirely free from the details of line administration.

Our scientific organization will, then, have line and staff positions, operating independently, but co-operating with certain other positions which combine both line and staff functions. The latter type will be that of the general manager who, in exercising administrative authority, acts as head line officer, but when holding council with his efficiency expert and other department heads, logically fills the position of chief of staff. Thus, any position may at times demand the use of both functions, but the head of the betterment department, or efficiency expert, should be a man whose greatest ability lies in that staff function which can discover and create methods for increasing the efficiency of the organization.




Major Hine has well illustrated this type of organization with his remarks on the cabinet and the secretary of state. The cabinet executives act as line officials in the administration of daily routine, but in council with the president they make up his staff. The president is logically the chief of staff, but in his absence, as Major Hine has pointed out, there is no chief; such position having been originally filled by the secretary of state, but now by the president's secretary. This is unquestionably a weak element in this important organization, and the time may come when there is a staff president or cabinet official who shall act as chief of staff. This idea has been successfully adopted in many industries, and its newest development is the creation of a staff captain on board every large ocean liner.

Almost every scheme of organization has been described and illustrated by the use of line diagrams and charts, but such are only of value in determining the line of authority, and the use of same should be made together with a clear definition of the functions of each position. For this reason we have laid special emphasis on the differentiation of line and staff functions, so that when they are shown graphically the relation will be understood.

The diagram (Fig. 1) will illustrate a simple example of organization built up of line and staff positions. The natural line of authority throughout is straight and as direct as possible. The staff position, being outside of this line organization, are correctly kept away from administrative routine, but must, in the performance of their duties, be under correct supervision, and thereby become a part of the line. It will be noted that all of the staff positions may be taken away without in any way breaking the lines of authority. The illustration might be made more emphatic by drawing separate diagrams for both functions, and then bringing together, making the staff functions join the line where they logically belong.

With the organization chart correctly drawn, each position must be clearly defined and standard instructions established.

Such instructions should be written by the head of the betterment department in conjunction with the general manager. It is of the greatest importance that these instructions be written without any consideration of the personnel of the existing organization. The scientific manager must determine his outline and plan his organization on ideals and principles established scientifically, and then develop the personnel to carry out these ideals.

Standard instructions on organization, although sometimes unnecessary for the defining of duties, will nevertheless prove to be of great value to the manager in determining the qualifications necessary for each position.

In the perfection of any organization with regard to personnel and standardization of duties, the line functions decrease and the staff functions increase. The ideal organization would be one requiring only staff ability because of the elimination of line discipline and the need of supervision. Such an ideal, however, can never be realized, because human nature is not so constructed. Even the human individual, representing the most perfect type of organization, must develop both functions to attain well balanced ability.

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THE

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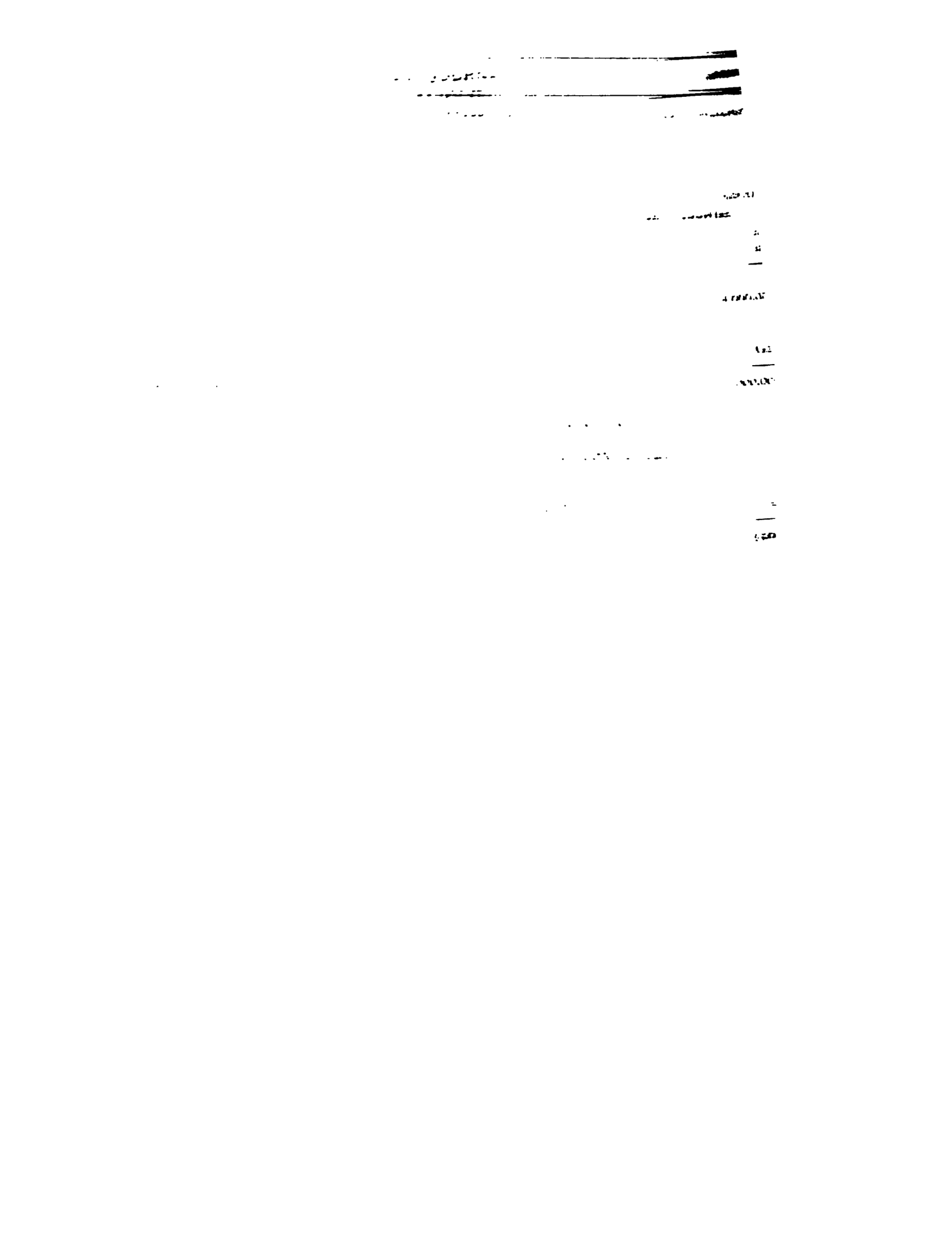

| | | | | |
|---|---|---|---|---|
| Butler | 94 | 18,295 | 19 | 1 |
| Wilson | 9 | 70 | 0 | 0 |
| Neosho | 14 | 160 | 0 | 2 |
| Allen | 16 | 220 | 0 | 0 |
| Franklin | 21 | 152 | 1 | 0 |
| Miami | 22 | 405 | 6 | 0 |
| Wildcats | 10 | 65 | 7 | 0 |
| Total | 278 | 20,447 | 35 | 4 |

## MID-CONTINENT.

### SUMMARY OF COMPLETED WORK.

| | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Oklahoma | 352 | 21,183 | 36 | 21 |
| Kansas | 278 | 20,447 | 35 | 4 |
| Arkansas | 0 | 0 | 0 | 0 |
| Total | 630 | 41,630 | 71 | 25 |

## TEXAS PANHANDLE.

### WELLS COMPLETED.

#### WILDCATS.

Coleman County—
Putman, Roberston & Son 6..... Gas

## NORTH LOUISIANA.

### WELLS COMPLETED.

Bossier—
22-16-12, Smith, Atlas Oil 1..... Gas
Miscellaneous—
33-21- 5, Fisher( Progressive O. & G. 3..... Gas

Total ..... 2

## NORTH LOUISIANA.

### SUMMARY OF COMPLETED WORK.

| | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Caddo | 12 | 410 | 3 | 0 |
| Texas | 1 | 0 | 1 | 0 |
| Bossier | 1 | 0 | 1 | 0 |
| De Soto | 4 | 120 | 2 | 0 |
| Red River | 3 | 1,475 | 0 | 0 |
| Miscellaneous | 4 | 20 | 2 | 1 |
| Total | 25 | 2,025 | 9 | 1 |

## GULF COAST REGION.

### WELLS COMPLETED.

#### BATSON.

Milhome, Buchanan & Fitzsimmons ..... Gas

#### GOOSE CREEK.

Tabb, Humble Oil 1..... Gas

#### VINTON.

Vincent, Gulf Refg. 3..... Gas

## TEXAS-LOUISIANA.

### SUMMARY OF COMPLETED WORK.

| | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Texas Panhandle | 46 | 4,303 | 7 | 1 |
| North Louisiana | 25 | 2,025 | 9 | 1 |
| Gulf Coast | 79 | 17,680 | 26 | 4 |
| Total | 150 | 24,008 | 42 | 6 |

## STANDARD OIL SUBSIDIARIES.

**December 1st to December 21st, Inclusive.**

By JO. P. CAPPEAU SONS.

| Par | | Open | High | Low | Last |
|---|---|---|---|---|---|
| £1 | Anglo-American | 16½ | 16½ | 16 | 16 |
| $100 | Atlantic Ref. | 925 | 990 | 925 | 925 |
| 100 | Borne-Scrymser | 460 | 515 | 450 | 460 |
| 50 | Buckeye Pipe | 106 | 121 | 105 | 105 |
| 100 | Chesebrough | 486 | 486 | 450 | 450 |
| 100 | Colonial | 6 | 60 | 50 | 50 |
| 100 | Continental | 570 | 570 | 530 | 530 |
| 50 | Crescen | 38 | 42 | 38 | 42 |
| 100 | Cumberland | 100 | 150 | 100 | 135 |
| 100 | Eureka | 230 | 230 | 220 | 220 |
| 100 | Galena Com. | 193 | 193 | 180 | 180 |
| 100 | Galena Pref. | 136 | 140 | 136 | 140 |
| 100 | Illinois Pipe | 222 | 256 | 217 | 238 |
| 50 | Indiana Pipe | 112 | 113 | 105 | 105 |
| 12½ | National Transit | 18 | 19 | 17 | 18 |
| 100 | New York Transit | 228 | 230 | 220 | 220 |
| 100 | Northern Pipe | 113 | 117 | 105 | 105 |
| 25 | Ohio Oil | 376 | 395 | 255 | 370 |
| 100 | Prairie Oil | 600 | 650 | 545 | 545 |
| 100 | Prairie Pipe Line | 335 | 349 | 332 | 365 |
| 100 | Solar Refining | 390 | 390 | 365 | 365 |
| 100 | Southern Pipe | 215 | 218 | 212 | 215 |
| 100 | South Penn. Oil | 520 | 610 | 520 | 556 |
| 100 | South West Penn. Pipe. | 110 | 115 | 108 | 115 |
| 100 | S. O. of California | 363 | 377 | 330 | 330 |
| 100 | S. O. of Indiana | 830 | 860 | 790 | 790 |
| 100 | S. O. of Kansas | 540 | 560 | 540 | 540 |
| 100 | S. O. of Kentucky | 690 | 790 | 685 | 750 |
| 100 | S. O. of Nebraska | 560 | 575 | 560 | 560 |
| 100 | S. O. of New Jersey | 680 | 709 | 660 | 660 |
| 100 | S. O. of New York | 266 | 282 | 255 | 255 |
| 100 | S. O. of Ohio | 420 | 450 | 420 | 450 |
| 100 | Swan & Finch | 130 | 135 | 115 | 115 |
| 100 | Union Tank | 98 | 98 | 92 | 92 |
| 100 | Vacuum Oil | 375 | 390 | 360 | 360 |
| 10 | Washington Oil | 40 | 40 | 40 | 40 |
| 25 | Penn-Mex | 62 | 62 | 60 | 60 |
| 5 | International Petroleum | 11 | 11½ | 10 | 10 |
| | **Independent Oil Companies.** | | | | |
| 25 | Pierce Oil | 16½ | 16½ | 13½ | 13½ |
| 50 | Midwest Refining | 80 | 83 | 76 | 75 |
| 25 | Tropical Oil | 13⅞ | 13⅞ | 10½ | 11½ |
| 5 | Cosden Refining | 17½ | 17¾ | 15⅞ | 16 |
| 5 | Sapulpa Refining | 10⅞ | 11 | 9 | 9¼ |
| 5 | Cosden Oil & Gas Com. | 14 | 13⅝ | 14⅞ | 14 |
| 5 | Cosden Oil & Gas Pfd. | 4¾ | 5 | 4¾ | 4⅞ |
| 5 | Okla. Producing & Refining | 11⅜ | 13⅛ | 9⅞ | 10⅛ |
| 5 | Wayland Oil & Gas | 4⅝ | 5⅛ | 4¼ | 4¾ |
| 1 | Midwest Oil | 43 | 49 | 42 | 49 |
| | Sinclair Oil & Refining. | 61 | 66¾ | 56¾ | 59½ |

## LIMA FIELD.

### WELLS COMPLETED.

WOOD COUNTY.

Bloom—E. Simons, Ohio Oil 16..... Gas

HANCOCK COUNTY.

Cass—J. C. Kissell, H. D. Stoeltzinger, Trustee 1 ..... Gas

PIKE COUNTY.

Washington—L. C. Thomas, A. B. Bement 12 Gas

CRAWFORD COUNTY.

Honey Creek—P. E. Darnold, Phipps & Co. 1 Gas

## OKLAHOMA.

### WELLS COMPLETED.

WASHINGTON COUNTY.

29-29-13, Michael, Owen & Connely 1..... Gas
5-26-13, Gilchrist, American Oil 3..... Gas

Total ..... 2
Production .....3,000,000

CHEROKEE SHALLOW SAND.

25-25-12, Tyner, Consumers Gas 3..... Gas
24-25-12, Simpson, Consumers Gas 2..... Gas

Total ..... 2
Production ..... 750,000

OSAGE COUNTY.

18-17-11, Indian Tel. Ill. Oil 2..... Gas
26-27-10, Indian Ter. Ill. Oil 2..... Gas
36-25- 9, Edwards, Indian Ter. Ill. Oil 5..... Gas
29-25-11, Lot 285, Foster & Brennan 30..... Gas
12-25-11, Lot 185, Lewcinda Oil 2..... Gas
12-25-11, Lot 185, Lewcinda Oil 1..... Gas
9-23- 8, Tidal Oil 24 ..... Gas

Total ..... 7
Production .....35,000,000

SHAMROCK POOL.

9-16- 7, Heneha, Eastern Oil 14..... Gas
22-17- 7, Gypsy Oil 18 ..... Gas

Total ..... 2
Production .....15,000,000

TULSA, TANEHA, GLENN POOL, WICEY, KELLYVILLE.

26-18-13, Graysob, George et al 1..... Gas
29-17-13, Marguerite Oil 1..... Gas
35-17-14, New York Oil 1..... Gas

Total ..... 3
Production .....28,500,000

OKMULGEE-MORRIS.

21-12-14, Smith, Young et al 1..... Gas

Production .....1,000,000

OKFUSGEE, McINTOSH AND CREEK COUNTY WILDCATS.

10-12-14, Rebold et al 2..... Gas
31-12-17, Fisher, Green River Oil 1..... Gas

Total ..... 2
Production .....5,000,000

WAGONER, MUSKOGEE AND ROGERS COUNTIES.

17-15-16, Mid-Continent Oil 1 ..... Gas
12-17-15, Chase, Gladys Belle Oil 2..... Gas

Total ..... 2
Production .....4,000,000

WILDCATS.

Noble County—
15-23- 2, Glen Rose Oil 1..... Gas

Production .....2,000,000

## KANSAS.

### WELLS COMPLETED.

MONTGOMERY COUNTY.

15-34-14, Webb, Winters et al 8..... Gas

Production ..... 250,000

BUTLER COUNTY.

16-27- 4, Scully, Prairie O. & G. 9..... Gas

Production .....2,000,000

NEOSHO COUNTY.

19-28-17, Bogle, Evans et al 1..... Gas
22-27-19, Howard, Midway O. & G. 4..... Gas

Total ..... 2
Production .....1,500,000

## OKLAHOMA.

### SUMMARY OF COMPLETED WORK.

| | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Cherokee d. s. | 42 | 600 | 3 | 2 |
| Cherokee s. s. | 39 | 580 | 4 | 2 |
| Osage | 22 | 955 | 3 | 7 |
| Cleveland | 7 | 130 | 3 | 0 |
| Cushing-Shamrock | 40 | 8,135 | 1 | 2 |
| Creek | 178 | 8,200 | 27 | 9 |
| Kay | 1 | 158 | 0 | 0 |
| Healdton | 19 | 2,125 | 0 | 0 |
| Wildcats | 4 | 300 | 2 | 1 |
| Total | 352 | 21,375 | 43 | 23 |

## KANSAS.

### SUMMARY OF COMPLETED WORK.

| | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Montgomery | 60 | 695 | 0 | 1 |
| Chautauqua | 32 | 385 | 2 | 0 |

| | | | | |
|---|---|---|---|---|
| Butler | 94 | 18,896 | 19 | 1 |
| Wilson | 0 | 70 | 0 | 0 |
| Neosho | 14 | 160 | 0 | 2 |
| Allen | 16 | 280 | 0 | 0 |
| Franklin | 21 | 152 | 1 | 0 |
| Miami | 22 | 405 | 6 | 0 |
| Wildcats | 10 | 65 | 7 | 0 |
| Total | 278 | 30,447 | 35 | 4 |

## MID-CONTINENT

### SUMMARY OF COMPLETED WORK

| | Comp | Prod | Dry | Gas |
|---|---|---|---|---|
| Oklahoma | 352 | 21,183 | 50 | 21 |
| Kansas | 278 | 30,447 | 35 | 4 |
| Arkansas | 0 | 0 | 0 | 0 |
| Total | 630 | 41,630 | 71 | 25 |

## TEXAS PANHANDLE

### WELLS COMPLETED

#### WILDCATS

Coleman County

Coleman Robertson & Sons 6 Gas

## NORTH LOUISIANA

### WELLS COMPLETED

Bossier

Gladys South Atlas Oil 1 Gas

Miscellaneous

Stark & Fisher Progressive Oil & Gas 1 Gas

Total 2

## NORTH LOUISIANA

### SUMMARY OF COMPLETED WORK

| | Comp | Prod | Dry | Gas |
|---|---|---|---|---|
| Caddo | 12 | 414 | 1 | 0 |
| Texas | 1 | 0 | 1 | 0 |
| Bossier | 1 | 1 | 1 | 0 |
| Red Fork | 4 | 130 | 2 | 0 |
| Red River | 1 | 1,475 | 1 | 0 |
| Miscellaneous | 4 | 20 | 2 | 1 |
| Total | 23 | 2,040 | 9 | 1 |

## GULF COAST REGION

### WELLS COMPLETED

#### BAYOU

McKenzie Buchanan & Extramont 6 Gas

#### GOOSE CREEK

Gulf Humble Oil 1 Gas

#### VINTON

Vincent Gault Reig 1 Gas

## TEXAS-LOUISIANA

### SUMMARY OF COMPLETED WORK

| | Comp | Prod | Dry | Gas |
|---|---|---|---|---|
| Texas Panhandle | 46 | 4,103 | 7 | 1 |
| North Louisiana | 23 | 2,040 | 9 | 1 |
| Gulf Coast | 79 | 17,680 | 26 | 4 |
| Total | 148 | 24,008 | 42 | 6 |

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### December 1st to December 31st, Inclusive

Par Value $100 Except as Noted

| Par | | Open | High | Low | Last |
|---|---|---|---|---|---|
| $ | Ang. American | 15 | 16½ | 15 | 16 |
| 100 | Atlantic Ref. | 225 | 225 | 225 | 225 |
| 100 | Buckeye Pipe | 100 | 121 | 100 | 100 |
| 100 | Chesebrough | 450 | 450 | 450 | 450 |
| 100 | Colonial | 7 | 60 | 60 | 60 |
| 100 | Continental | 150 | 150 | 150 | 150 | 150 |
| 50 | Crescent | 50 | 50 | 50 | 50 |
| 100 | Cumberland | 100 | 100 | 100 | 100 |
| 100 | Eureka | 200 | 200 | 200 | 200 |
| 100 | Galena Sig. | 150 | 150 | 150 | 150 |
| 100 | Galena Pref. | 150 | 150 | 150 | 150 |
| 100 | Illinois Pipe | 200 | 200 | 200 | 200 |
| 100 | Indiana Pipe | 110 | 110 | 110 | 110 |
| 25 | National Transit | 18 | 19 | 18 | 18 |
| 100 | New York Transit | 200 | 200 | 200 | 200 |
| 100 | Northern Pipe | 100 | 100 | 100 | 100 |
| 25 | Ohio Oil | 300 | 300 | 300 | 300 |
| 100 | Prairie Oil | 600 | 600 | 600 | 600 |
| 100 | Prairie Pipe Line | 100 | 100 | 100 | 100 |
| 100 | Solar Refining | 300 | 300 | 300 | 300 |
| 100 | Southern Pipe | 200 | 200 | 200 | 200 |
| 100 | South Penn Oil | 150 | 150 | 150 | 150 |
| 100 | South West Penn Pipe | 100 | 100 | 100 | 100 |
| 25 | Standard of California | 30 | 30 | 30 | 30 |
| 25 | Standard of Indiana | 60 | 60 | 60 | 60 |
| 25 | Standard of Kansas | 40 | 40 | 40 | 40 |
| 25 | Standard of Kentucky | 60 | 60 | 60 | 60 |
| 25 | Standard of Nebraska | 40 | 40 | 40 | 40 |
| 25 | Standard of New Jersey | 60 | 60 | 60 | 60 |
| 25 | Standard of New York | 30 | 30 | 30 | 30 |
| 25 | Standard of Ohio | 60 | 60 | 60 | 60 |
| 25 | Swan & Finch | 10 | 10 | 10 | 10 |
| 25 | Union Tank | 25 | 25 | 25 | 25 |
| 25 | Vacuum | 50 | 50 | 50 | 50 |
| 25 | Washington Oil | 8 | 8 | 8 | 8 |
| 100 | Wolverine Pipe | 50 | 50 | 50 | 50 |
| | Total Standard Issues | | | | 50 |

#### Independent Oil Companies

| | | | | | |
|---|---|---|---|---|---|
| | Barnsdall | | | | 13 |
| | Mexican Eagle | 6 | 6½ | 6 | 6½ |
| | Producers | 10 | 10 | | 11 |
| | Indian Territory | | | 10 | 10 |
| | Nagoosa Mexican | 6 | | | 6 |
| | Northern Texas | 6 | 10 | 6 | 6 |
| | Northern Texas Pref. | 6 | 10 | 6 | 6 |
| | Ohio Producing & Ref. | | | | |
| | Corp. | 10 | 10 | 9 | 10 |
| | Waddell Oil & Gas | 6½ | 10 | 6 | 6½ |
| | Mexican Oil | 6½ | 6 | 6½ | 6½ |
| | Northern Oil & Refining | | | | 50 |

# AROUND THE BELT

**New Wells, New Pipe Lines, New Contracts, Additions and Extensions. A Fund of Valuable News Gathered for the Journal Through Many Sources.**

## TRADE PERSONALS

It will be noted that the names appearing under the personal headings are exclusively those of men interested in the development of the natural gas field. Those wishing to learn of matters pertaining to men interested in the field of artificial gas should refer to THE GAS INDUSTRY magazine, published at 60 Pearl Street, Buffalo, N. Y., which devotes its columns entirely to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being specificially issued for its respective field. In this way each magazine renders 100% efficiency in the industry it covers.—Publisher's Note.

BAUER, J. F., postmaster of Crestline, Ohio, is President of the newly organized Crestline Oil & Gas Company.

BITZEL, E. M., has been elected President of the Bromide Oil & Gas Company, a new concern which will operate in the territory surrounding Waynesburg, Ohio.

BRASWELL, A. G., has been elected President of the Allen County Oil & Gas Company, Scottville, Ohio.

CLAPP, FREDERICK G., petroleum engineer and geologist of New York, addressed the Geological Society of America at Albany, N. Y., on December 28th on the two subjects, "Ethics of the Petroleum Geologist" and "Revision of the Structural Classification of Petroleum and Natural Gas Fields."

CRAWFORD, J. B., has retired from the Presidency of the United Natural Gas Company, Oil City, Pa.

DAVIS, F. H., has been elected President of the Eden Gas & Fuel Company, Eden, N. Y.

ECKHART, CHARLES, at the annual meeting of the Eden Gas & Fuel Company, Eden, N. Y., was elected Vice-President.

FARRELL, FREDERICK, recently joined the force of the Pavilion Natural Gas Company at Perry, N. Y.

FRITTS, JOHN P., of Larchmont, N. Y., is President of the Island Oil & Transport Company, recently incorporated at Richmond, Va., with a capital of $30,000,000.

FULLER, MYRON L., of the Associated Geological Engineers, was one of the authors who prepared a paper for the Symposium on Petroleum held December 27th to 29th by the Geological Society of America. Mr. Fuller's subject was "The Appalachian Oil Fields."

HAY, H. H., has resigned from his position with the Union Indian Agency, Muskogee, Okla., and has accepted the post of Office Manager for E. W. Kimbley, oil operator, Okmulgee Okla.

LYNCH, JAMES D., who has been manager of the local office of the Ontario Gas Company, Lima, N. Y., the past three years, has been promoted to a position in the Batavia office of the company.

MACMILLEN, R. D., of the Oxweld Acetylene Company, who formerly made his headquarters in Chicago, is now located at Newark, N. J.

MATHEWS, A. L., has been elected a Vice-President of the J. G. White Management Corporation to take charge of a new department.

MUGG F. H., of the new business department of the Enid Electric & Gas Company, of Enid, Okla., recently addressed the students of Phillips University on "Natural Gas," referring particularly to its distribution and value for commercial and domestic purposes.

STEINBERG, E. M., has been appointed agent for the Iroquois Natural Gas Company at Hamburg, N. Y., where the company recently opened an office for the transaction of business.

TREWEKE, W. E., is Vice-President of the recently organized Allen County Oil & Gas Company, Scottville, Ohio.

WILLIAMS, W. A., who has been with the Bureau of Mines in Washington on petroleum work, has joined the Doherty forces and will assist Mr. Diescher and H. R. Straight in oil and natural gas operations. Mr. Williams is visiting 60 Wall street.

## DECEASED

KERRIGAN, FRANCIS J., Secretary of the Rock Run Fuel Gas Company, died at Pittsburg, Pa., December 1st, in his forty-eighth year.

## PER CUBIC FOOT—RATES

It will be noted that the gas rates referred to below are those referring specifically to natural gas rates. Those desiring to learn of artificial gas rates should refer to THE GAS INDUSTRY, published at 60 Pearl Street, Buffalo, N. Y., which devotes its columns entirely to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being exclusively issued for its respective field, and each rendering 100% efficiency in the industry it covers.—Publisher's Note.

**MISSOURI—Kansas City**

The question of a 30-cent gas agreement with the Doherty interests is before the Kansas Public Utilities Commission.

It is the intention of H. L. Doherty to file a new schedule with the various commissions to prove the reasonablness of a higher rate. In his opinion any rate less than 32 cents would be confiscatory.

**NEW YORK—Bergen**

The [illegible] Oil & Natural Gas Company [illegible] granted a franchise [illegible] by the village has filed its proposed schedule of charges with the Public Service Commission and with the village board stating that a minimum service charge of [illegible] cents a month will be made and that on all bills [illegible] to the 15th a discount of 10 cents on a [illegible] will be allowed.

**OHIO—Newark**

[illegible] of the Ohio Supreme Court restrain[illegible] the Newark Ohio Gas Company from charging [illegible] more than eighteen cents per thousand feet the rate [illegible] cents. Ordinance of March 6 1911 has been [illegible] by the Supreme Court.

**PENNSYLVANIA—Smethport**

An appeal [illegible] the Peoples Gas Company [illegible] the company arising from the company's [illegible] the minimum rate for [illegible] presented before members of the Public Service Commission and which was [illegible] several months ago has been [illegible] the Public Service Commission. The minimum [illegible] charged by the Peoples Gas Company for the [illegible] and the rates shall be the rate set forth [illegible] of the company to [illegible] effect and [illegible] further ordered that the complaint in this case is [illegible].

**WEST VIRGINIA—Charleston**

[illegible] have agreed to [illegible] of the Kanawha [illegible] the Coal and Kanawha valleys [illegible] to determine whether the former may [illegible] rate charged to industrial consumers as [illegible] the new schedule of some time ago with the [illegible] Service Commission.

## INCORPORATED

[illegible] Publication Bureau

**OHIO—Scottville**

[illegible]

**TEXAS—Dallas**

[illegible]

**VIRGINIA—Richmond**

A charter has been issued to the Leland Oil & Transport company with an authorized capital [illegible] to [illegible] John P. Ferris of Lawrence N. Y. president. The company's charter grants [illegible] but does not allow it to operate a public utility business.

**WEST VIRGINIA—Charleston**

The Kanawha Natural Gas company has been organized by Pittsburgh capitalists for the purpose of developing the Walton District in Kanawha county. The company has a capital of $100,000 and among those interested in the venture are J. K. Marshall, J. J. Hedup, J. J. Sanders, [illegible] Magh and R. J. Russell all of Pittsburgh.

## ITEMS OF FINANCE

[illegible] Publication Bureau

**OHIO—Cincinnati**

[illegible] of the [illegible] Gas company [illegible] in the market Dec. [illegible] issue of [illegible] [illegible] less than three [illegible] [illegible] W. J. Hayden & [illegible] Wilkins & Co.

**OKLAHOMA—Oklahoma City**

The Oklahoma Natural Gas company has declared the regular quarterly dividend of [illegible] per cent, payable [illegible] to holders of record January [illegible].

**Tulsa**

[illegible] Natural Gas company has [illegible] regular quarterly dividend of [illegible] per cent, payable [illegible].

**PENNSYLVANIA—Pittsburgh**

[illegible]

**Pittsburgh**

[illegible]

# GENERAL

It will be noted that the items appearing under this heading pertain specifically to natural gas matters, development in natural gas fields, etc. Those wishing to obtain a knowledge of the newest developments along artificial gas lines, are referred to THE GAS INDUSTRY magazine, published at 60 Pearl Street, Buffalo, N. Y., which devotes its columns exclusively to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being specificially issued for its respective field, and each, therefore, rending 100% efficiency in the industry it covers.—Publisher's Note.

**ARKANSAS—Ozark**

A well is being drilled here for the Ozark Oil & Gas Company, which has leases on 10,000 acres of land in this section.

**CALIFORNIA—Pomona**

The Southern Counties Gas Company is building a pipe line from the Brea oil field to this city. The company will serve this city as well as certain rural districts.

**INDIANA—Anderson**

The Central Indiana Gas Company, it is reported, is contemplating changing from natural gas to the manufactured product.

**KANSAS—Caney**

The Wichita Gas Company suffered a severe loss on New Year's day when fire destroyed two tanks containing large quantities of gasoline.

**Iola**

A gasser estimated to have a production of 3,500 000 cubic feet was brought in on the Bedwell-Ross-Bowlus lease, northwest of this city. The gas was found at six feet in the sand.

**Montgomery County**

C. E. Roth's No. 4 test on the D. E. Love land in the northeast corner of the northeast quarter of section 34-32-15, is good for 260,000 cubic feet of gas.

**KENTUCKY—Carter County**

At Denton, a 6,000,000-foot well has been completed by Burdette & Murphy of Ashland, Ky. The Kentucky Gas & Oil Company and the Little Sandy Oil & Gas Company each have large holdings near this place and it is understood that they will begin drilling just as soon as machinery can be secured.

**St. Louis**

On December 18 a meeting of the employes of the Louisville Gas & Electric Company was held in the office. The principal address was made by Rev. Dr. Joseph Rauch on "What America Asks of the Immigrant." Talks were also made by Donald McDonald, Vice-President and General Manager of the company; John F. Hearst and E. B. Wood. Safety first prizes for the year were awarded as follows: First prize, $25, C. F. Twyman; second prize, $12, D. L. Crapster; third prize $10, Wm. Knodel. These prizes are in addition to the regular monthly Safety First prizes. Prizes for winners in the tennis tournament were also awarded and the Commercial Department prizes for the salesmen securing the largest amount of connected load during the year were distributed as follows: First prize, $40, I. Dreyfus; second prize, $35, Emily Pilpel; third prize, $25, Fulton Mandeville.

**LOUISIANA—Monroe**

Fifteen miles north of Monroe, the Ouachita Oil & Gas Company has a large gasser on the A. L. Smith land. The gas will be piped to Monroe.

**MONTANA—Baker**

Two new gas wells of large producing capacity have been completed here, and the city now has an ample supply for all purposes.

A brick and tile company was recently organized here, and has contracted for a supply of gas.

**Baker**

The Montana Petroleum Company, which has been granted a twenty-five-year franchise here has let the contract for the construction of its pipe line to John W. Cox, of Fortville, Ind.

**Helena**

The Montana-Canadian Oil Company is completing plans to finance the supplying of gas in Helena from northern Montana. Dr. T. C. Witherspoon of Butte is President of the concern.

**NEBRASKA—Fairburg**

Floyd A. Feith and Albert Zweifel, two progressive farmers living northwest of the city are busily engaged in drilling a well on the Feith farm.

**NEW YORK—Buffalo**

The Bison Gas Corporation is delivering gas through its recently completed system.

**Dunkirk**

To conserve the supply of natural gas for domestic consumption the South Shore Gas Company has turned off the gas at a number of factories.

The South Shore Gas Company is drilling on a lot at Eagle and West Second street.

The South Shore Natural Gas & Fuel Company has practically discontinued gas service to several local factories and has notified all manufacturing concerns using gas to arrange for other fuel. The purpose of this move is to give domestic consumers the best possible pressure.

**Eden**

The new officers of the Eden Gas & Fuel Company are as follows: President, E. H. Davis; vice-president, Charles Eckhart; secretary-treasurer, Henry Hickman.

**Geneva**

A good flow of gas was uncovered on the John Harris farm near Billsboro, south of this city. The gas was found at a depth of 100 feet.

**Hamburg**

The Iroquois Natural Gas Company will open an office at 36 Main street on January 1st for the transaction of business. E. M. Steinberg is the local agent.

**Hornell**

The well completed recently on the William Stevens farm, located between Hornell and Canisteo, is proving to be a steady producer. The gas was found at a depth

of about 700 feet. Drilling is progressing on the N. W. Conway farm which is a short distance from the Stevens farm.

**Interlaken**

A test well for natural gas is being drilled a short distance north of Interlaken.

**LeRoy**

A number of extensions are to be made by the Pavilion Natural Gas Company.

**Madison**

The Ohio Fuel Supply Company is making arrangements to drill test wells in this county for oil and gas. The possibilities of Onondaga County will also be investigated.

**Medina**

G. E. Romayne and I. J. Cramer have leased about 1,500 acres of land lying along the Sale road, Freeman road and State road between Medina and Middleport.

**Sheridan**

The town board has found the gas lights installed on the main thoroughfare of the village very satisfactory. The South Shore Natural Gas & Fuel Company has the contract for lighting the village.

**Wellsville**

The Empire Gas Company has completed a light gasser on the Foreman farm in Bolivar township. A rig is up for another well on this farm. Appleby Bros. are the contractors.

**OHIO—Arlington**

The last items of construction on the distributing system of the Arlington Natural Gas Company are being completed and it is expected that gas service will soon be at the disposal of local residents.

**Ashland**

Gas companies in Ohio are working extra forces of men in an endeavor to find new wells for an adequate supply of gas. Ashland, Wayne, Knox and other counties in the state that have in the past furnished gas or are now furnishing it are being thoroughly examined and developed. Many new wells are being drilled in an effort to keep the supply up with the increasing demand.

**Ashland County**

In Green Township the Logan Gas & Fuel Company completed a fair gas well on a test on the H. F. Brenger farm and is drilling No. 1 on the J. M. Parr farm.

**Ashtabula**

Gas consumers in Ashtabula are using gas from fifteen wells on the Saybrook field which was opened up not long ago by the Commercial Oil & Gas Company of this city. The gas from the Commercial wells is being turned into the Northeastern Oil & Gas Company's pipe line near Conneaut and the Saybrook gas is being used here and also for some other fields in which Conneaut and Geneva are interested.

The Ashtabula Gas Company is using about 1,000,000 cubic feet per day now and at least 2,000,000 feet of this comes from Saybrook territory.

**Berea**

It is reported that the Maple Oil Company's well located between Brook Park and Berea on the Beach farm, twelve miles from Cleveland, is making 7,000,000 cubic feet.

**Holmes County**

The Northside Oil & Gas Company has drilled its No. 3 well on the Smeltzinger farm near Killbuck and it is showing for a good gas well. The company has 700 acres under lease.

**Crestline**

The Crestline Oil & Gas Company has been organized here with I. F. Bauer, president and I. F. Zink, secretary and treasurer. The company owns a gas well on the Bauer farm and has leases on much of the land in that vicinity. Contracts for two additional wells near the Bauer well have been awarded by the Crestline company.

**East Liverpool**

The Ohio Valley Gas Company, a branch of the Manufacturers' Light & Heat Company of Pittsburgh, have ordered the gas shut off under all potters kilns in East Liverpool and Wellsville, O., and Chester and Newell, West Va.

**Fairfield County**

In the Bremen district the Carter Oil Company completed a test on the Huston McVeigh farm and it is a gasser.

**Licking County**

In Granville Township the Hersey Gas Company drilled in a very light gas well on the T. J. Robinson farm but will plug the hole and abandon the well.

In Licking Township the Hersey Gas Company drilled a fair gas well in No. 1 on the southeast corner of the G. L. Swartz 122 acre farm and is drilling No. 2 on the southeast corner of the J. H. Christ farm.

In Washington Township J. H. Kirkpatrick drilled No. 4 on his own farm and has a light gas well. This well has been under way for about a year.

The Licking Window Glass Company drilled a fair gas well on the northeast corner of the John Mills farm.

In Granville Township the Columbus Natural Gas Company drilled a very good gas well on the northwest corner of the F. J. Reese farm. This company is drilling on the J. Fulton farm in Newark Township.

**Logan**

The holdings of the Logan Furnace Company have been acquired by the Federal Oil & Gas Company for a consideration of $40,000.

**Mineral City**

The Federal Gas Development Company will be supplied with gas by the Mineral City Gas Company. The contract calls for new wells three miles from the city at a depth of about 4,000 feet.

**Sandusky**

The natural gas supply for Sandusky, which is [illegible] Sandusky has been shut off from large industrial plants in the interest of [illegible]. Work on extensions that have been under almost from the beginning of the natural gas service in that territory. Last year however, among [illegible] and to [illegible] weather conditions there was no [illegible] and gas earnings at Sandusky were almost [illegible] figures. In December [illegible] when the [illegible] were [illegible] the gas revenues for December [illegible] due to the growth in domestic use.

**Waynesburg**

The Bromide Oil & Gas Company, a half million dollar corporation, incorporated in Delaware and now applying for permission to operate under Ohio laws, plans extensive development of the oil and gas, chemical clay products and fertilizer industries at Waynesburg.

About 5,000 acres of land has been leased at Waynesburg and surrounding country.

The following have been elected as officers: E. M. Bitzel of Waynesburg, president; Fred Golden, of Pittsburg, secretary; Juliano Luordo, of Pittsburg, treasurer, and the Potter Title & Trust Company of Pittsburg, registrar.

**OKLAHOMA—Bartlesville**

Bradstreet, Foster, et al., have a very large gasser in this section. They are now drilling another well in the same territory.

**Blackwell**

The Lucky Leaf Oil & Gas Company is drilling test wells in this territory.

**Dewey**

The Warren Petroleum Company has drilled in a 3,000,000-foot well on its lease near this city.

**Healdton**

The Gypsy Oil Company has a gasser which is reported to be making 75,000,000 cubic feet, at a depth of 2,100 feet, in the Fox pool.

**Leonard**

Larcher et al., are drilling at 1,530 feet in their test on the Susan Billy farm in 25-17-14 after bradenheading 7,000,000 feet of gas found at 1,520 feet.

**Muskogee**

Further information regarding the oil and gas leases recently filed, as given below, may be obtained from THE NATURAL GAS JOURNAL, Buffalo, N. Y.

35841—Dated 12-18-16, to J. M. Campbell and L. L. Laws, Alex, Okla.; 280 acres; Grady County.

35842—Dated 1-3-17, to, Fred D. Misener, Tulsa Okla.; 40 acres; Wagoner County.

35843—Dated 12-7-16, to O. P. Baker, Idabel, Okla.; 40 acres; Carter and Grady Counties.

35844—Dated 12-9-16, to Robert McRay, Hanna, Okla.; 80 acres; McIntosh County.

35845—Dated 12-9-16, Big Jack, Creek, Roll No. 8291, Hanna, Okla., to same; 160 acres; McIntosh County.

35846—Dated 12-9-16, Harry Proctar, Creek, Roll No. 7828, Hanna, Okla., to same; 160 acres; McIntosh County.

35847—Dated 12-9-16, Hopiyoche, Creek, Roll, No. 7899, Hanna, Okla., to same; 67.50 acres; McIntosh County.

35848—Dated 12-9-16. Effie Harjo, Creek, Roll No. 9133, Hanna, Okla., to same; 60 acres; McIntosh County.

35849—Dated 12-9-16. David Green, Creek, Roll No. 7507, Hanna, Okla., to same; 160 acres; McIntosh County.

35851—Dated 12-9-16. Slumker, Creek, Roll No. 7900, Hanna, Okla., to same; 85 acres; McIntosh County.

35852—Dated 12-9-16. Ariadne Reynolds, Creek, Roll No. 7461, Hanna, Okla., to same; 40 acres; McIntosh County.

35853—Dated 12-13-16, to N. B. Feagin, Ardmore, Okla.; 290 acres; Carter County.

35854—Dated 12-22-16, to C. H. Deaner, Okmulgee, Okla.; 160 acres; McIntosh County.

35955—Dated 12-12-16, to Weona Oil Co., St. Louis, Mo.; 120 acres; Seminole County.

33856—Dated 12-9-16, Ella Greenwood, minor, Chickasaw, Roll No. 519, by J. H. Greenwood, gdn., Connersville, Okla.; 260 acres; Johnston County.

35857—Dated 12-28-16, to Oklahoma-Kansas Oil Co., Tulsa, Okla.; 160 acres; Wagoner County.

35858—Dated 12-29-16, to James L. Admire, Antlers, Okla.; 50 acres; Carter County.

35859—Dated 12-29-16, Mary Nowabbi, Choctaw, Roll No. 11647, Hugo, Okla., to same; 50 acres; Garvin County.

35860—Dated 12-17, to P. A. Norris, Ada, Okla.; 200 acres; Pontotoc County.

35861—Dated 1-4-17, to Gale Statler, Ada, Okla.; 320 acres; Pontotoc County.

35862—Dated 1-2-17, to George McMillan, Bristow, Okla.; 21 acres; Creek County.

35863—Dated 12-20-16, to L. R. Ebling, Bartlesville, Okla.; 80 acres; Nowata County.

35864—Dated 12-20-16, Charlotte Downing, Cherokee, Roll No. 14945, Peggs, Oka., to same; 90 acres; Nowata County.

35865—Dated 12-20-16, Joe Kingfisher, Cherokee, Roll No. 18653, Teresita, Okla., to same; 130 acres; Nowata County.

35866—Dated 12-20-16, Tom Kingfisher, Cherokee, Roll No. 18656, Teresita, Okla.; 110 acres; Nowata County.

35867—Dated 12-16-16, to R. B. Finell, Tulsa, Okla.; 40 acres; Tulsa County.

35868—Dated 12-16-16, Jessey D. Sunday, minor, Cherokee, Roll No. 18124, Tulsa, Okla., by Wm. Sunday, gdn., to same; 40 acres; Tulsa County.

35869—Dated 12-12-16, to John A. Loomis, Muskogee, Okla.; 130 acres; Pittsburg County.

35870—Dated 12-23-16, to Kingwood Oil Co., Okmulgee, Okla.; 80 acres; Okmulgee County.

35871—Dated 12-22-16, to O. A. Simmons, Hugo, Okla.; 240 acres; Pontotoc County.

35872—Dated 12-22-16, Tecumseh Walton, Chickasaw, Roll No. 519, Ada, Okla., to same; 140 acres; Pontotoc County.

35873—Dated 12-22-16, Jincy Carney, nee Johnson, Chickasaw, Roll No. 626, Ada, Okla., to same; 230 acres; Pontotoc County.

35874—Dated 12-28-16, to Savoy Oil Co., Tulsa, Okla.; 78.19 acres; Okmulgee County.

35875—Dated 12-19-16, to E. J. Lambert, Tulsa, Okla.; 160 acres; Okmulgee County.

35876—Dated 1-5-17, Rena Fair, Cherokee, Roll No. 6325, Pryor, Okla., to same; 30 acres; Washington County.

35877—Dated 12-20-16, to L. R. Ebling, Bartlesville, Okla.; 130 acres; Nowata County.

[illegible] Dated [illegible] to The American Industrial [illegible] Oklahoma City Okla., [illegible] acres, Custer County.

[illegible] Dated [illegible] to [illegible] Lynch, Hugo, Okla., [illegible] acres, Pontotoc County.

[illegible] Dated [illegible] Nannie Parmacher, Chickasaw, [illegible] Ada, Okla., to same, [illegible] acres, Pontotoc County.

[illegible] Dated [illegible] to Markes Wright nee Johnson, Chickasaw Roll No. [illegible], Ada, Okla., to same, [illegible] acres, Pontotoc County.

[illegible] Dated [illegible] to Mose Wolfe, Chickasaw Roll No. [illegible], Ada, Okla., to same, [illegible] acres, Pontotoc County.

[illegible] Dated [illegible] to Cathy Thompson nee Illete, Chickasaw Roll No. [illegible], Ada, Okla., to same, [illegible] acres, Pontotoc County.

**Oklahoma City**

The Oklahoma Gas & Electric Company is making [illegible] of prospective gas and electric [illegible] to be served along a [illegible] extension to the County [illegible] Putnam City.

The [illegible] lines and properties of the Peoples Fuel Supply Company, which has distributing systems supplying Wortell, Wellington, Arkansas City, Kan., Newkirk, [illegible], Perkins and other places in northern Oklahoma, have been acquired by Calvin J. Reader, President of the Oklahoma Natural Gas Company.

**Orange County**

[illegible] Texas Pipe Line Company's No. [illegible] [illegible] [illegible] cubic feet of gas.

**Yukon**

Natural gas [illegible] Yukon by the Okla[illegible] Gas Company, the [illegible] system having been completed December [illegible].

**PENNSYLVANIA—Allegheny County**

At Dravosburg, the Commercial Gas Company [illegible] its third gas well on the Samuel Swogger farm [illegible].

**Bradford**

[illegible] reported destroyed by fire [illegible] the plant of the [illegible] & [illegible] Company.

**Bryn Mawr**

[illegible] awarded to Isaac Mauer, of this city, for the [illegible] gasser, a very large gasser, was [illegible] on the Bert D. McClure farm, Newtown [illegible].

**Butler**

The Duff Gas Fuel Company has [illegible] its [illegible] system and is delivering gas.

**Conley**

A $5,000 [illegible] and [illegible] the [illegible] of the Conley Glass Company, [illegible] a portion of the plant. The [illegible] was [illegible] by the Conley Gas Company.

**Mason**

Manley & Bird of Bradford have [illegible] on the [illegible] well on the Lutzenmith farm, near Mason. The gas was found in the Kane sand at a depth of [illegible] feet.

**Johnstown**

The Johnstown Fuel Company has been compelled to discontinue its service to the Cambria and Lorain Steel Companies and to The Davis Brickfarm Company on account of gas shortage. The industrial consumption reaches a figure in the neighborhood of two million feet a month.

**McKeesport**

A three million foot gasser has been drilled in near East McKeesport.

**Oil City**

A farewell banquet was recently tendered F. D. Cramford who retired on the first of January as President of the United Natural Gas Company at the Venango Club by employees of the United Natural, Pennsylvania Clarion and Iroquois Natural Gas Companies from Buffalo, Farmers Valley, Warren, Clarion, Titusville, Meadville, Sharon, Franklin, Oil City, Brookville and Dubois. A farewell gift in the form of a very beautiful gold watch was presented Mr. Cramford, the presentation ceremonies being ably performed by F. V. Mallers.

**Pittsburgh**

A new [illegible] gas main is being laid by the Hope Natural Gas Company from the West Virginia fields to Pittsburgh to relieve the gas shortage. The construction is being pushed as rapidly as possible, the company paying the men $4 a day.

The [illegible] Fuel Supply Company and the Fayette Gas [illegible] operating in [illegible] West Virginia and western Pennsylvania and a large natural gas distributing [illegible] have [illegible] the increase in the cost of living gave to their employees and will pay [illegible] receiving $3 a day will receive $3.50 per day; those between $3 and $4 per day will receive between $3.50 and $4.50 per day, and those between $4 and $5 per day will receive $5 per day.

[illegible] of [illegible] are being the winter months [illegible] the Pittsburgh district, natural gas manufacturers in the Pittsburgh district have been offering experts [illegible] the [illegible] and have [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] gas.

The Carnegie Steel Company is using [illegible] at [illegible] the Pittsburgh [illegible] plant, the [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

**Roulette**

Drilling for gas or oil in this county of Potter and in the neighboring counties of McKean and Elk has advanced to 85 cents a foot. This means that the drilling in the local field, of a well of average depth and drilling difficulty, will cost from $2,200 to $2,500.

The advance in cost of drilling is the result, it is said, of an agreement between the principal drilling contractors of the three counties named above. At a recent meeting of the contractors, held in Bradford, Pa., it was made known that material, labor, teaming and other expense items of well-drilling during the last 18 months or so have advanced so greatly that in some instances drillers had been unable to make their expenses. Some materials used in drilling have of late months advanced 70 per cent., it was claimed.

It is reported that drilling for gas in the Roulette field and for oil and gas in the various fields adjacent to Roulette, continues brisk.

**Warren**

The Warren-Chautauqua Gas Company at Christmas presented all of its employes with checks for an extra month's salary. The checks ranged from $85 upwards and came from the office of the Union Natural Gas Company, the parent concern.

**TEXAS—Dallas**

The Domestic Oil & Gas Company has been formed with a capital stock of $10,000. The incorporators are: J. S. Lewis, D. C. Earnest and E. H. Taylor.

**Duvall County**

The Cudahy Oil Company has completed a 10,000,000 cubic foot gasser.

**Parker County**

This territory is to be thoroughly tested for oil and gas by the Parker County Oil & Gas Company, which has a capital of $50,000. The first well will be drilled on the Peaster farm, southwest of Weatherford. The company has leases on 32,000 acres between Weatherford and Millsap.

**Waco**

Natural gas service to consumers who are using more than 250,000 cubic feet a month has been discontinued by the Texas Power & Light Company, in order to protect the small user.

**WEST VIRGINIA—Braxton County**

On the Right Fork of Steer Creek, Otter district, the Mill Creek Oil & Gas Company's test on the C. R. Bourne farm is a gasser in the salt sand and has an estimated capacity of 3,500,000 cubic feet a day.

**Cameron**

The Cameron Heat & Light Company has completed its system here and is delivering gas.

**Charleston**

The Mountain State Gas Company has been granted a franchise to construct a gas and oil pipe line from Dawes, on Cabin Creek, to Cabin Creek Junction.

**Calhoun County**

On Yellow Creek, Center district, G. L. Cabot has drilled in a second test on the D. M. Whipkey farm and it is showing for a gasser in the Big Injun sand.

**Doddridge County**

On Beech Lick Run, Greenbrier district, Randolph & Lowther drilled their test on the Mary L. & D. Hurst farm through all sands and found nothing but a fair gas pressure in the Gordon sand. It was plugged below that formation and shot and is a good gasser.

In Central district, the Pittsburg & West Virginia Gas Company's test on the C. I. Cox and J. R. Hiley farms are gassers in the Big Injun sand.

On Fishing Creek, Church district, the Philadelphia Company's test on the C. Cosgray farm is a gasser in the Big Injun sand.

In Long Drain Run, in the same district, the same company's second test on the W. N. Clayton farm is a gasser in the Big Injun sand.

**Gilmer County**

In Troy district, the South Penn Oil Company's No. 3 on the A. L. Rymer farm, is reported a good gasser in the Big Injun sand.

**Harrison County**

In Ten Mile district the Hope Natural Gas Company has a fair fifth sand gasser on the J. L. Barnett farm.

On Katy Lick Run, Sardis district, the Philadelphia Company's test on the W. G. Allen farm, is a gasser in the Big Injun sand. On Sycamore Creek, Union district, the same company's No. 8 on the W. B. Maxwell farm is a gasser in the fifth sand.

On Simpson Creek, Simpson district, the Hope Natural Gas Company's test on the James Dunkin farm is a fair gasser in the fourth sand.

**Lewis County**

On Back Fork, Freemans Creek district, the Hope Natural Gas Company's test on the Patrick Hines farm is a light gasser in the Gordon sand. On the same stream the same company's test on the John Cullen farm is a gasser in the Big Injun sand.

In Freeman's Creek district, on the J. B. Rinehart farm, the Gilmer Coal Company drilled its test, and has a gasser.

On Walnut Fork, the Philadelphia Company's No. 7 on the W. B. Maxwell farm is a fair gasser in the Big Injun sand.

**Marion County**

In Case district, the West Virginia Traction Company has a gasser at its test on the William Raber farm.

In the Fairview district, the Hope Natural Gas Company's test on the D. L. Toothman farm is a gasser in the Big Injun sand.

**Marshall County**

On Cedar Run, Liberty district, the Carnegie Natural Gas Company's test on the John Mackey farm is a light gasser in the Maxon sand.

In Liberty district, the Carnegie Natural Gas Company's test on the J. G. Fair farm is a good gasser in the Big Injun sand.

**Monongalia County**

On Miracle Run, Battelle district, the Hope Natural Gas Company drilled its test on the Gump heirs' farm through the Gordon sand to a depth of 3,523 feet and has a fair gasser.

on the same stream and in the same district the Carnegie Natural Gas Company drilled a test on the Wil[illegible] Park farm into the Big Injun sand and developed a good gasser.

**Pleasants County**

In the Dall's territory in Union district, I. C. Wh[illegible] & C. completed No. 10 on the Riggs Bros. farm. It is a good gasser in the Keener sand. In the same district, the Eagle Run Oil Co. has a small producer in the Gor[illegible] sand at No. 18 on the Allen Holdren farm.

In Jefferson district the Pleasants Natural Gas Com[illegible] has a good gasser in the Squaw sand at No. 6 on the [illegible] Steele Ward farm.

In Cedar Run, Liberty district, the Carnegie Natural [illegible] Company's test on the H. C. Parr farm is a gasser in the Big Injun sand.

**Ritchie County**

In Clay district the Carnegie Natural Gas Company's test on the I. J. & C. L. Ross farm is a fair gasser.

In Murphy district the Hope Natural Gas Company's test on the M. C. Weldman farm is a gasser.

In Sutters Fork, Grant district, the Ranger Gas Com[illegible] has a light gasser at a second test on the Isaac Dills farm.

**Roane County**

In Little Creek, Spencer district, the Calvert Drilling Co. on the Orville C. Epling farm into the Big Injun sand, [illegible] a gasser with a capacity of [illegible] feet a day.

In Little Left Hand Fork, Geary district, the United Fuel Gas Company has a Big Injun sand gasser at a test on the S. W. Harper farm.

**Tyler County**

The Hope Natural Gas Company drilled a test on the [illegible] farm, located on Elk Fork, Elsworth district, through the Gordon sand and developed a gasser.

In Centerville district, the Pittsburgh & West Virginia Gas Company drilled a test on the [illegible] farm into the Big Injun sand. It is a good gasser. On the same stream and in the same district the Carnegie Natural Gas Company drilled a test on the A. R. Dunlap farm, through the same [illegible] Big Injun sand.

**WYOMING—Cowley**

[illegible] for the Grant Gas Syndicate, has struck a [illegible] gas from the Basal Permian sand. The [illegible] sand, which is the first oil sand encountered in drilling, is also reported to be showing gas. Work is being rushed on the well, which is expected to be completed within a few days.

**WEST VIRGINIA—Madison**

[illegible] Natural Gas Co. [illegible] Manager [illegible]

**ONTARIO—Dunnville**

The American Natural Gas Co. of Ontario, Ltd., have completed a well on the Dewer property in Canboro Township, near the town of Dunnville, with a flow of 3,000,000 cubic feet per day. A second well is under way.

**Niagara Falls**

Deep natural gas has been struck in Porter Township, which will relieve the shortage in the supply here. Natural gas is now scarce. The Provincial Natural Gas & Fuel Co. has its mains filled with warmed air. Consumers are using [illegible] and other fuel this winter, as the supply will be very scant unless they have been unable to strike a paying well during the spring or summer. Four wells have been drilled without avail.

**Tillsonburg**

The Victoria Oil & Gas Co. has drilled in a good gas well near here, the product of which is being marketed by the Medina Natural Gas Company.

**Dunnville**

The American Natural Gas Co. of Ontario, Ltd., has been formed and will have its head offices in New York City. Branches are to be maintained at Dunnville, Ont., and Lockport, N. Y. Albert P. Wolf and Eugene L. Diener are the leading factors in the new organization.

The new [illegible] reported to have leases on [illegible] in the vicinity of Haldimand, Lincoln, Welland, Brant, Kent and Norfolk and has secured options on hundreds of gas wells, all producing well within the [illegible]. Arrangements are [illegible] have been made with large distributing companies at a low rate for large quantities of gas. It is expected to be in [illegible] gallons of gasoline daily.

## CINCINNATI GAS SUPPLY

A [illegible]

# WELDING OUTFITS
# CUTTING OUTFITS

*"No Gas Department can possibly be complete without a welding outfit from this time on."*

The great value of the oxy-acetylene outfit for welding and cutting to the Gas Industry is not confined to welding new gas mains. It is even more valuable in emergency work, for repair work, both in the field and in the shop— saving time, saving cost, saving material that would otherwise be scrapped, and increasing efficiency.

OXY-ACETYLENE WELDING
DAVIS
APPARATUS
DAVIS-BOURNONVILLE CO. KY.

**LEADS THE WORLD FOR RANGE, EFFICIENCY, and NUMBER OF OUTFITS IN SUCCESSFUL USE**

The first welded pressure gas mains were welded with Davis Apparatus, and "D-B" outfits are in daily use by those concerns who have made the greatest success of oxy-acetylene welding, both in the Gas Industry and in all metal working lines.

The highest award at the Panama-Pacific Exposition for oxy-acetylene apparatus was given Davis Apparatus, —the Medal of Honor, higher award than the Gold Medal, —in the Collective Gas Exhibit.

*Write for special pipe-welding data and other information of interest to gas engineers and superintendents.*

---

## DAVIS-BOURNONVILLE COMPANY

**New York Chicago**

**General Offices and Factory: Jersey City, N. J.**

**Sales Offices: New York, Chicago, Detroit, Cleveland, Pittsburgh, Philadelphia, Boston.**

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**FOR SALE**—45 J. P. -4 cycle automatic Gas Engine. First-class condition. Address G G G Metal Stamping Co., Warren, Pa.

---

**WANTED**—Young man with ten years' experience in compressor station, and at present in charge of compressor station of 2250 H. P., would like position with small company. Address 2183, Natural Gas Journal, Buffalo, N. Y.

---

## FOR CONTROLLING WATER LEVELS IN LOW PRESSURE BOILERS—

**BRYANT AUTOMATIC WATER FEEDS**

EVERYONE knows that there is one point of water level at which a boiler is most efficient and economical. This device is maintaining that level in thousands of boilers It has seamless copper float, special bronze valves, and overflow. Water level can be changed 2 inches with boiler under pressure, by simply turning valve seat stem, which projects outside. In adjusting the duplex model, (not illustrated) overflow must be changed same distance.

Also get the facts about the Bryant Quick Acting Gas Cut-off Valve for use with temperature regulators. They open to full pipe area on slight movement, have pilot light opening and renewable seats.

Makers of Bryant Tabular Gas boilers, storage systems, water heaters and heating accessories.

**THE BRYANT HEATER & MFG. CO.**

956 E. 72nd Street CLEVELAND

GAS BOILERS, WATER HEATERS, STORAGE SYSTEMS AND HEATING ACCESSORIES

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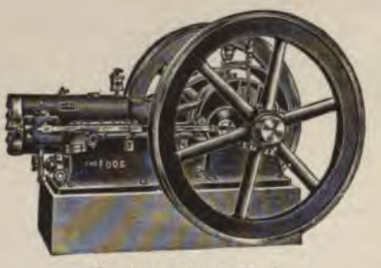
THE Foos



Type S — 4 to 90 H. P.

WITH a record of 16 weeks' continuous non-stop operation at full load, compressor service. This is an engine that will do anything reasonably expected in a power plant and in a number of cases has stood the hardest kind of service for as many as 30 years. This is the result of inbuilt quality and design exclusively characteristic of the Foos Engine.

## The Foos Gas Engine Co.

**SPRINGFIELD, OHIO**

# EVERYTHING FOR OIL OR GAS

**Branch Stores in All Oil Fields**

Valves for Controlling High Pressures

Boilers

Steam Engines

Gas Engines

Pumps

Pumping Powers

Pipe

Tubing

Casing

Cast Iron Fittings

Malleable Fittings

Drilling Tools

Manila Cables

Steel Cables

Packers

Refinery Equipment

Steel Rigs

Portable Drilling Machines

*The Spindel gas well at McKeesport, Pennsylvania. This well was struck July 7, 1915, at a depth of 2,000 feet and blew wild for seven days and twenty-one hours. Capacity of well, 75,000,000 cu. ft. per day.*

**OIL WELL SUPPLY CO., Pittsburgh, Pa.**

New York San Francisco Los Angeles Tampico London

# Natural Gas and Gasoline
## JOURNAL

SUBSCRIPTION—
$2.00 IN THE U. S.

CONTENTS FOR FEBRUARY, 1917

VOLUME 11
THIS NUMBER 2


## PUBLISHER'S NOTICE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# ANNOUCEMENT

A FIELD WITHOUT A JOURNAL, is like a country without a flag. Therefore the new "Standard."

The Natural-Gas-Gasoline industry has by leaps and bounds come into its own. Yet, as known in its two forms, namely, *"Natural-Gas-Gasoline"* and *"Casinghead-Gas-Gasoline,"* it is clearly an integral part of the parent field, NATURAL GAS.

Therefore nothing could be more fitting, than that THE NATURAL GAS JOURNAL should add the word "Gasoline" to its title and publish the subject-matter of this newer field, in its pages.

The name of this magazine will remain as heretofore, but for the addition of the word "GASOLINE."

Under the scope of the new title, the expanding industry will in subsequent issues, find its broadening interests well cared for in the pages of the "JOURNAL."

THE PUBLISHERS

# MEMBERS OF ASSOCIATION OF NATURAL GAS SUPPLY MEN

"With Malice toward none
With Charity for all."

"With Firmness in the Right as God gives us to see the Right."

—*Abraham Lincoln*

"Nothing can be more obvious than that a sound military establishment and the interests of economy are the same."

—*George Washington*

# FROM THE EDITORIAL MAIL BAG

## VALUABLE BUREAU OF MINES SERVICE

WHILE our government is spending millions of dollars and keeping thousands of young men out of employment and discouraging thousands of families, the heads of which are usually the main supports of which are carrying on fighting campaigns, or drawing salaries in the War Department, it apparently threatens to cut off supply of appropriations to the Bureau of Mines for the carrying on of its important investigations relating to petroleum and natural gas.

It seems quite likely that the national government needs to be put up a reasonable defense for its action in connection with the long delay in returning civilian [illegible] a defense that would seem ample to steel. [illegible] are two sides to the story and we are inclined to believe that there have been other reasons [illegible] the real [illegible] the hour that have resulted in the most unfortunate condition of a condition that [illegible] many industries of the services of men [illegible] needed especially at this time when oil and gasoline shall have been at a premium because of their war uses and during which one of [illegible] of the [illegible] necessary to the [illegible] that a single day.

[illegible] that there should be [illegible] Bureau of Mines [illegible] reason may be expected [illegible] [illegible] [illegible]

## SUFFERING FROM GAS SHORTAGE.

CITIES served by natural gas companies, and cities served by artificial gas companies are in certain instances both suffering from a lack of supply. In the former case it is a matter of shortage of natural gas. In the latter case it is a shortage of fuel for gas manufacture. In both cases the public finds itself actually suffering, while the gas company management is put to its wit's ends to know what to do to meet the emergency.

From one city where there is a most unfortunate shortage of natural gas comes a letter which we reprint below. In connection with reproducing this letter received, we print our reply.

The Journal desires to protect the gas interests, but not would be acceptable, if we have not properly stated facts:

Feb. 13, 1917.

Natural Gas Journal:

Gentlemen:—As considerable interest is being taken at at the expense of truth. Letters of adverse criticism the present juncture in this city on the gas question (owing to a marked scarcity of that commodity), any additional information on the matter of the possibilities of obtaining an increased supply would be most acceptable to many of the citizens.

Yours faithfully,

**********

Feb. 16, 1917.

**********

Dear Sir:—We are in receipt of your letter of February 13th, but are not able to give you any clue to the solution of the problem of shortage of gas.

In Buffalo, in Cleveland, and in various other cities, the condition is, I presume, as serious as yours in Hamilton. Of course, it is true that the great reserve beneath ground has not been exhausted by any manner of means, but it would take an enormous expenditure on the part of gas interests to drill sufficient wells to take care of a most extreme demand of an extreme winter for the brief period during which that demand is made.

Imagine with the cost of drilling what it is, then added to that the enormous expense of wells that produce nothing after drilling, and you will see what an investment gas companies would have to make in order to meet the special demand during the brief period as mentioned.

If the public would pay more per thousand cubic feet for its gas, it would give the gas interests surplus money with which to undertake the drilling of added wells, but at the low cost at which gas is sold, it would work a hardship on the gas interests to carry such an enormous added investment for possibly fifty or fifty-one weeks of the year, in order to supply the excessive demand of one or two weeks of the year.

It would seem that the public must bear with the gas interests the enormous additional investment if the public would seek relief from the brief, over-taxed capacity available.

Even certain of the artificial gas companies, for instance, Detroit, Buffalo, etc., are so short of fuel because of present conditions surrounding shipping, and the getting of cars through to destination, that these companies are having to ask the public to be very economical in the use of their gas in order not to cause suffering on the part of others who are largely dependent upon gas.

Present conditions are especially trying, and are indeed especially unusual. They are extreme, but we believe relief is in sight.

Very truly yours,

NATURAL GAS AND GASOLINE JOURNAL.

## HOW DO YOU HANDLE YOUR TRUCK LOADS.

**Remarkable Results in Public Utilities Work Through Use of Motor Trucks.**

THE following information results from an inquiry regarding what is being accomplished with trucks, by the Peoples Gas Light & Coke Company of Chicago.

In 1912 the first of the Pierce-Arrow trucks now used by that big Chicago enterprise of the gas field, went into service. Since that time fullest detail has been kept in record form of the service performed.

The complete success of motor vehicles has resulted in a diminishing use of horses, until during the present year the last horse was retired from service, and horse vehicles went out of use.

The trucks are performing varied types of service; in the construction department for conveying pipe to installation jobs; and are used in carting paving stone for the completing of street work. One Pierce-Arrow is used entirely for the delivery of ranges.

In two years, records show in this work, that respectively 10,408 and 10,452 miles have been covered. The following details are certainly of major interest in this field of gas, in view of the fact that more and more completely is this matter of cartage and drayage being taken over from horse vehicles to motor vehicles:

Through the Peoples Gas Light & Coke Company's own garage a most careful service and inspection system has been an effective protection to the trucks, and according to the superintendent they are only out of service when tires are being put on them. Between three and four miles are yielded to the gallon of gasoline.

Every effort is made to save loading time. Trucks take on their first load at night and start out distributing pipe at 7:30 in the morning. They are back in the yards by 5 P. M.

The records of the company call for the number of gallons of gasoline and dripoene, the cost of these and of labor, cylinder oil, grease and miscellaneous supplies. License and insurance costs are tabulated. The several kinds of labor and material charges are based on whether the work is done in the garage or outside. Total cost and mileage are shown and finally the whole calculation is brought down to the cost per mile.

This company gets genuine mileage. One truck in a year is shown by these figures to have made 11,992 miles. The lowest yearly average figure of cost per mile is $.183 and the truck that made that mark cost in a year, with everything included only $1903.44.

# NATURAL GAS CONVENTION AND EXHIBITION

BUFFALO, N. Y., MAY 14, 15, 16, 17, 1917

## WORTH WHILE CASH PRIZES

T

**$100.00 IN CASH PRIZES IS OFFERED**

### CASH PRIZES

TO BE GIVEN TO VISITING GAS MEN AT MAY [illegible] AT BUFFALO

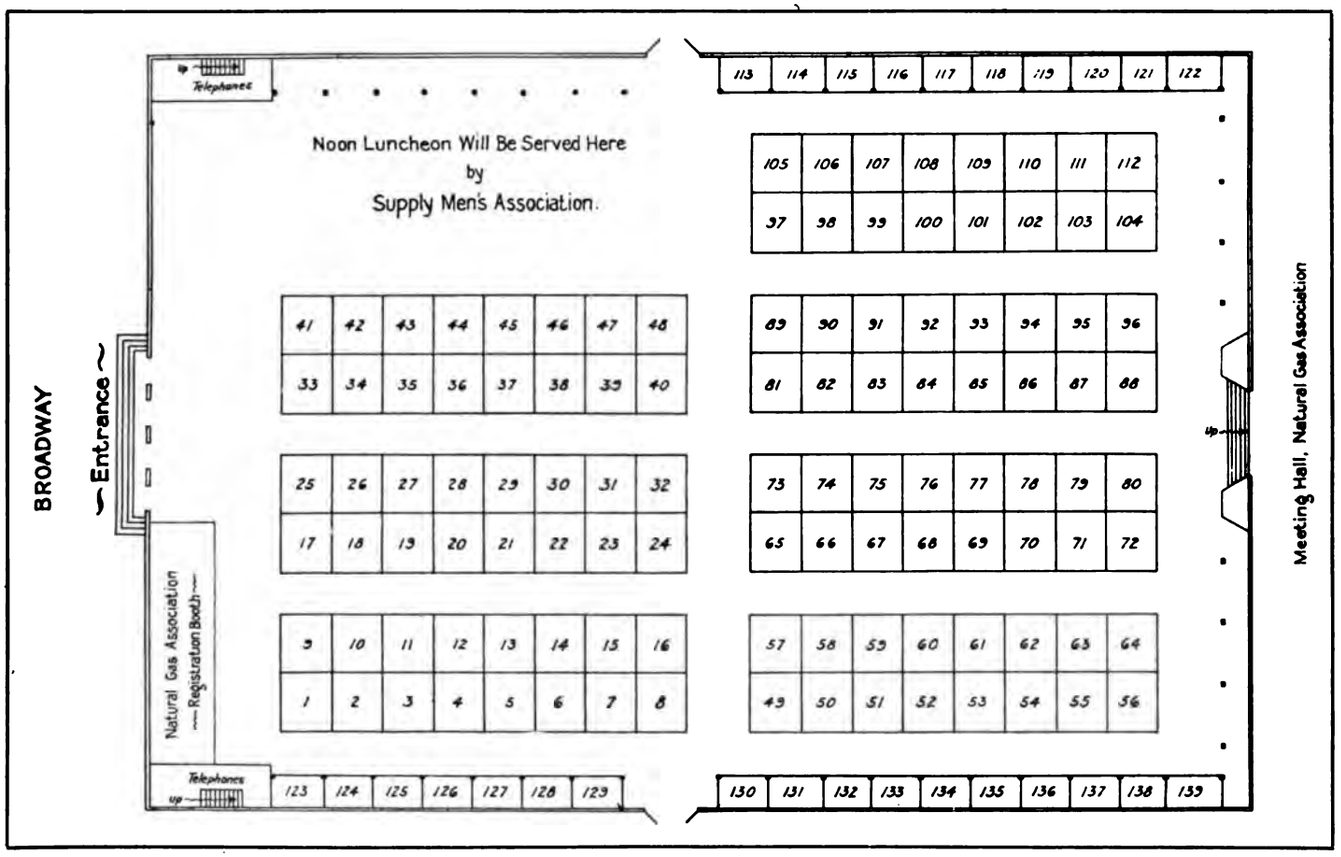
P

body in the hall. It saves much time, and makes possible the prompt starting of the afternoon session, with a goodly number in attendance.

Manufacturers of the field must, if they would exhibit, become members of the Natural Gas-Association of America, and also members of the Supply Men's Association, the annual cost of both of the memberships being a very reasonable matter.

The Association places the cost of booths at a figure that should be tempting to all manufacturers of natural gas equipment. A list of prices we print as follows:

Spaces 1, 9, 17, 25, 33, 41, 64, 72, 80, 88, 96, 104.....$60.00 each
Spaces 8, 16, 24, 32, 40, 48, 49, 56, 57, 65, 73, 81, 97, 105, 112, 122, 139..... 55.00 each
Spaces 113, 130 ..... 45.00 each
Spaces 129, 123 ..... 40.00 each
Spaces 2-7, 10-15, 18-23, 26-31, 34-39, 42-47, 50-55, 58-63, 66-71, 74-79, 82-87, 90-95, 98-103, 106-111.. 40.00 each




EXHIBITION FLOOR OF BROADWAY AUDITORIUM—260 FT. LONG BY 180 FT. WIDE.

Spaces 114-121, 131-138, 124-128 ..... 30.00 each

Spaces 1-112 inc. are 12 feet frontage and 14 feet deep.

Spaces 113-121 inc. and 123-138 inc. are 11 ft. 9 in. frontage and 8 ft. deep.

Spaces 122 and 139 are 18 ft. 4 in. front and 8 ft. deep.

The Exhibition opens in advance of the day of sessions, and will be ready for attending gas-men at 9:00 A. M., Monday, May 14th.

In Buffalo, the Hotel Lafayette, Hotel Statler and Hotel Iroquois are the leading caravansaries, and it will be the part of each one proposing to be at the Convention, to apply direct to one of these hotels for room accommodations. They are all on the European plan.

Regarding membership in the Natural Gas-Association of America, address T. C. Jones, Secretary, Delaware, O. For membership in the Supply Men's Association, and regarding booth space, address Larmour Adams, 1304 First National Bank Building, Pittsburgh, Pa.

In order to further announce the prizes amounting to $100.00 offered by the Supply Men's Association for competition at the Gas Exhibition at Buffalo, we reprint the announcement which first appeared in the pages of a field magazine, in the NATURAL GAS AND GASOLINE JOURNAL.

## SECRETARY'S OFFICE NATURAL GAS SUPPLY MEN'S ASSOCIATION.

IT should not be overlooked that Mr. Larmour Adams, Secretary of the Natural Gas Supply Men's Association, should now be addressed at 1304 First National Bank Building, Pittsburgh, Pa. The former address was Erie, Pa. Matter addressed to Mr. Adams at Erie is apt to be delayed, while such addressed to Pittsburgh will have prompt attention.

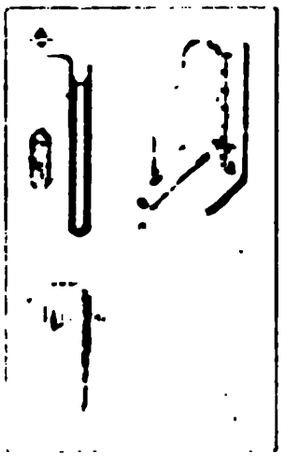
## WEDDED.

MR. J. B. CRAWFORD of the United Natural Gas Company of Oil City, Pa., has crossed the line into the green fields of wedded life. Many friends are offering congratulations. We join in the procession, carrying good will to Mr. and Mrs. Crawford.

## DETERMINING CONTENT OF NATURAL GAS

### Means of Testing for Gasoline

S



The authors have found that the percentage yield as determined by the laboratory freezing method corresponds well with the yield of gasoline in pints per 1,000 cubic feet of gas, as obtained in actual plant operation. In other words, if 1 per cent. of gasoline vapor is obtained by the freezing test, 1 pint of gasoline per 1,000 cubic feet of gas treated will be obtained in an absorption plant.

## ANALYSIS OF NATURAL GAS.

An analysis of natural gas for methane, ethane, carbon dioxide, and nitrogen does not provide much information regarding the gasoline content of natural gas, but such a determination is useful in showing the percentage of paraffin hydrocarbons present and in calculating the specific gravity and the heating value.

The type of apparatus with which the authors analyze natural gas for paraffin hydrocarbons, carbon dioxide, and nitrogen, the constituents of natural gas (hydrogen sulphide also is present in some natural gas) is shown in figure 2.

The pipette *a* contains potassium hydroxide solution; pipettes *b* and *d* contain alkaline pyrogallate solution; the pipette *c* is the slow combustion pipette. The burette *f* has a capacity of 100 c. c. and is graduated to 0.10 c. c.

### PROCEDURE IN MAKING ANALYSIS.

Oxygen or other gas left in the horizontal capillary train from the previous analysis is displaced by drawing a few cubic centimeters of nitrogen—prepared beforehand by passing air into the pipette and absorbing the oxygen by means of the alkaline pyrogallate solution—from the pipette *d* into the burette. This mixture is then allowed to escape into the air.

About 100 c. c. of the gas sample is then drawn from the sample container into the burette. The sample is measured in the burette against the pressure existing in the manometer tube exactly to the mark *g*. The sample is then passed successively into the potassium hydroxide solution to remove carbon dioxide, and the alkaline pyrogallate solution to remove oxygen, the burette measurements being made in the same manner as with the original sample.

The residual gas left after the carbon dioxide and oxygen have been determined is discarded. The capillary connections are cleared of combustible gas by dilution with air, and 100 c. c. or slightly less of oxygen is measured into the burette and passed into the combustion pipette. About 35 c. c. of the gas sample is then drawn into the burette from the sample container and measured. The platinum wire in the combustion pipette is then heated electrically to a white heat and the gas sample passed at the rate of about 10 c. c. per minute into the combustion pipette containing the oxygen. The paraffins burn as fast as they enter, so that an explosion consequent upon the accumulation of gas and oxygen cannot follow. In analyzing natural gas the authors have obtained the best results by passing the oxygen into the pipette first. When the natural gas is passed in first, the mixture does not always burn satisfactorily.

After the paraffins are burned which requires about four or five minutes, the combustion pipette is allowed to cool and the contraction in volume due to combustion is measured. The carbon dioxide produced by the combustion is determined by absorption in the potassium hydroxide solution. Then the gas is passed into the alkaline pyrogallate solution to make sure that sufficient oxygen has been present for the complete combustion of the paraffins. Some samples of natural gas, especially gas from which gasoline can be recovered, may contain such a large proportion of the higher paraffin hydrocarbons that 100 c. c. of oxygen will not be sufficient for the complete oxidation of 35 c. c. of natural gas. For such samples a smaller quantity of the gas must be used for the combustion.

In no case is the mercury in the burette raised above the upper stopcock. The gas remaining in the capillary tubing at any stage of the analysis is brought in contact with the solutions by passing it back and forth several times between the burette and the pipette. After combustion, for instance, some carbon dioxide will remain in the capillary tubing between the combustion pipette and the burette when the gas is drawn back into the burette to record the contraction in volume. After most of the carbon dioxide has been absorbed by the potassium hydroxide the small quantity that remains in the capillary tubing is swept out of the tubing into the potassium hydroxide pipette, and the operation is repeated in order to insure the complete removal of the carbon dioxide. If this precaution is not taken an error of considerable magnitude will result. Finally the residual gas is burned again in the combustion pipette, and the amount of contraction and the volume of carbon dioxide are measured. This second burning is often necessary in order to burn the natural gas completely.

### EXAMPLE OF A TYPICAL ANALYSIS.

A typical analysis with the calculations from the analytical data is given herewith.

FIRST SAMPLE.

| | Burette readings, c. c. |
|---|---|
| Volume of sample taken for absorption | 30.70 |
| Volume after $CO_2$ absorption | 30.70 |
| $CO_2$ absorbed | .00 |
| Volume after $O_2$ absorption | 30.70 |
| $O_2$ absorbed | .00 |

FRESH SAMPLE.

| | |
|---|---|
| Volume of oxygen taken for combustion | 74.85 |
| Volume of sample taken for combustion | 30.70 |
| Total volume | 105.55 |
| Volume after burning | 42.30 |
| Contraction | 63.25 |
| Volume after $CO_2$ absorption | 7.20 |
| $CO_2$ contraction | 35.10 |

Methane ($CH_4$) and ethane ($C_2H_6$) are calculated from the following theoretical equations:

$$CH_4+2O_2=CO_2+2H_2O.$$
$$C_2H_6+2.5\ O_2=2\ CO_2+3\ H_2O.$$

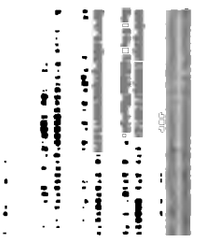
Let $x$=methane and $y$=ethane. Then $2x + 2.5y$ =total contraction, and $x+2.0y$=$CO_2$ produced, whence $CH_4$=84.1 per cent. and $C_2H_6$=15.1 per cent.

The complete analysis of the natural gas follows:

| | |
|---|---|
| Carbon dioxide ($CO_2$) | *a* 0. |
| Oxygen ($O_2$) | *a* .0 |
| Methane ($CH_4$) | 84.1 |
| Ethane ($C_2H_6$) | 15.1 |
| Nitrogen ($N_2$) | *b* .8 |

### CALCULATION OF THE SPECIFIC GRAVITY.

The specific gravity is calculated from the known specific gravities of the constituents that comprise the natural gas. These are as follows:



MEASURING THE FLOW OF NATURAL GAS

The plane of the opening in the tube is held at right angles to the flowing gas. At a convenient distance, varying from 1 to 2 feet, an inverted siphon or U-shaped gage, usually half filled with mercury or water, is attached to the other endend. If the pressure of the flow is more than 5 pounds per square inch, a pressure gage is required.

In small-sized wells with a flow of not more than 4,000,000 cubic feet per 24 hours, a 12-inch U-gage with water can be used; for flows ranging from 4,000,000 to 15,000,000 feet, mercury in a 12-inch U-gage; for 15,000,000 to 35,000,000 feet, a 50-pound spring gage, and for more than 35,000,000 feet, a 100-pound spring gage should be used. The foregoing figures are based on a 6-inch hole.

For convenience, a scale graduated from the center in inches and tenths of an inch is attached between the two limbs of the U-gage. The distance above and below this center line at which the liquid in the gage stands should be added, the object being to determine the exact distance between the high and low side of the fluid in inches and tenths of an inch.

The top joint of the tubing or casing should be free from fittings for a distance of 10 feet below the mouth of the well where the test is made. The test should not be made in a collar or gate or at the mouth of any fitting. The well should be blown off at least three hours prior to making the test.

After the velocity pressure of the gas flowing from the well tubing has been determined in inches of water, inches of mercury, or pounds per square inch, as outlined above, the corresponding flow may be obtained from the following table (a). The quantities of gas stated in the table are based on a pressure of 4 ounces above atmospheric, or 14.65 pounds per square inch absolute pressure, a flowing temperature of 60° F., a storage temperature of 60°F., and a specific gravity of 0.60 (air=1). If the specific gravity is other than 0.60 the flow should be multiplied by

$$\sqrt{\frac{0.60}{\text{specific gravity of gas}}}.$$

a Westcott, H. P., Handbook of natural gas, 1915, pp. 176, 177.

## PETROLEUM IN CENTRAL WYOMING.

THE petroleum resources of central Wyoming have engaged the attention of many since the days of Captain Bonneville's travels in the last century, when he described for the first time some of the tar springs of that region. Definite information as to the situation of the rock folds that are favorable to the accumulation of oil in this region is given in a report just issued by the U. S. Geological Survey, Department of the Interior. This report contains an account of the oil-bearing formations in central Wyoming, and points out the formations most likely to contain petroleum, such as the Frontier, with its important Wall Creek and Peay sandstone members, which are the productive sands in the most noted commercial oil fields of Wyoming. The report describes more than 20 anticlinal folds and notes whether the prospects that they may contain petroleum are favorable or unfavorable.

Large sums have been spent in prospecting in this region, but much of it has been wasted in unlikely places, and it is believed that wells properly located would perhaps yield oil in commercial quantities. The places where the most promising oil sands are concealed in anticlinal folds are pointed out in the final discussion.

A copy of Bulletin 641-I, entitled "Anticlines in Central Wyoming," by C. J. Hares, will be sent free of charge on application to the Director of the U. S. Geological Survey, Washington, D. C.

## NATIONAL CHAMBER OF COMMERCE.

AT a meeting of the National Chamber of Commerce, held in Washington recently, the accredited delegates from the Natural Gas Association of America were Association President Joseph F. Guffey; former President W. Y. Cartwright, and Martin B. Daly; also David O. Holbrook, Association Resident Secretary; John E. Gill, John G. Pew and H. E. Bedford.

The Conservation of natural resources covering a large field, not simply one of the natural resources, but all natural resources, controllable by United States government regulation, was a most interesting feature of the meeting. We regret that we have not space sufficient that is available, wherein to point out at some length the results of this meeting in Washington. First, because of the national import of the matters discussed, and second, in view of the fact that the editor and publisher of the NATURAL GAS AND GASOLINE JOURNAL was a charter member of the Chamber of Commerce of the United States, an organization doing so vast a service as to bring together those representing millions upon millions of invested capital in industrial enterprises, commercial institutions, and financial fields. Be it said, however, the meeting at Washington was a great success.

## CONVENIENT NEW QUARTERS.

The Ludlow Valve Company of Troy, N. Y., has moved its Pittsburgh branch office into new quarters in the First National Bank Building, offices No. 1304.

For some time the Pittsburgh branch has been located in the First National Bank Building, but the present move is into another suite of offices. Mr. William B. Way has been of the "make-good" kind and deserves the better accommodations.

How many in the industry know that the Ludlow Company make a valve, at only a few cents over the price of the usual type of valves, wherein two ground seats prevent gas escapement, without shutting off other valves in the line, at sections to the right and left of the valve in question, when packing having blown out, must be replaced.

When gas and gasoline are so valuable, who wants to lose a cubic foot of gas. "Save the pennies and the dollars will take care of themselves." This applies to single cubic feet of gas in the self-same manner. The Ludlow Company's new catalogue, just published, is ready for delivery.

# RESULTS OF DRILLING—LATEST REPORTS

## PENNSYLVANIA FIELD

### WELLS COMPLETED

#### ALLEGANY FIELD

| | |
|---|---|
| [illegible] McKean Nat Gas | Gas |

#### BRADFORD FIELD

| | |
|---|---|
| [illegible] United Natl Gs Repl | Gas |
| [illegible] United Nat Gs Repl | Gas |
| Total | 2 |

#### MIDDLE FIELD

Delaware

| | |
|---|---|
| [illegible] Hopewell Oil & Gas 1 | Gas |

#### VENANGO CLARION

| | |
|---|---|
| [illegible] N Gas 1 | Gas |
| [illegible] McCalmont 2 | Gas |
| [illegible] Vum Rock Gas 1 | Gas |
| [illegible] United Natural Gas 1 | Gas |
| [illegible] Penna Fuel Supply 2 | Gas |
| [illegible] Vum Rock Gas 2 | Gas |
| Total | 6 |

#### BUTLER ARMSTRONG

| | |
|---|---|
| [illegible] Wick & Beam 1 | Gas |
| [illegible] Duffy & Co 1 | Gas |
| Total | 2 |

#### WASHINGTON

| | |
|---|---|
| [illegible] Mfrs L & H 1 | Gas |
| People Gas 1 | Gas |
| [illegible] Phila Co 1 | Gas |
| [illegible] Phila Co 1 | Gas |
| Mt Pleasant | |
| [illegible] Phila Co 2 | Gas |
| [illegible] Seaman 1 | Gas |
| [illegible] Clark & Vincent 1 | Gas |
| Mt Morris | |
| [illegible] Central 1-27 | Gas |
| Total | 8 |

## WEST VIRGINIA

#### LICKING COUNTY

| | |
|---|---|
| Mississippian | |
| [illegible] Dev Co et al 21 | Gas |
| [illegible] Hope Gas 2 | Gas |
| [illegible] Hope Gas | Gas |
| [illegible] Central Coal 1 | Gas |
| [illegible] Carnegie Gas 1 | Gas |
| [illegible] Phila Co 2 | Gas |
| [illegible] Carnegie Gas 1 | Gas |
| [illegible]water, Carnegie Gas 2 | Gas |
| Maxwell Columbian Carbon 15 | Gas |
| [illegible] Hope Gas 1 | Gas |
| Foley Hope Gas 1 | Gas |
| Tomlinson Hope Gas 1 | Gas |
| Eddy Peoples Gas 1 | Gas |
| Hockinson Phila Co 1 | Gas |
| Bartlett Carnegie Gas 1 | Gas |
| Gumpher Hope Gas 1 | Gas |
| Park Hope Gas 1 | Gas |
| W Park Carnegie Gas 1 | Gas |
| Wetzel and Tyler | |
| Earnshaw Carnegie Gas 2 | Gas |
| M Earnshaw Phila 4 | Gas |
| W N Clayton Phila 2 | Gas |
| Crosgrea Phila 1 | Gas |
| Taylor So P Co 1 | Gas |
| M Bartrug Phila 1 | Gas |
| Throckmorton Phila 1 | Gas |
| Mehaffey Hope Gas 1 | Gas |
| Evans Barber & Co 1 | Gas |
| Richmond Mfrs L & H 1 | Gas |
| Cox, Pgh & W Va Co 1 | Gas |
| Hiles Pgh & W Va Co 2 | Gas |
| Conaways, Carnegie Gas 2 | Gas |
| Carder Carnegie Gas 1 | Gas |
| Ritchie County | |
| Kenwood Hope Gas | Gas |
| Pleasants County | |
| Riggle [illegible] White Ash 1 | Gas |
| Ward Pleasants Gas 1 | Gas |
| Total | 15 |

## SOUTHEASTERN OHIO

Perry County

| | |
|---|---|
| [illegible] Ohio River Ass 2 | Gas |

Noble County

| | |
|---|---|
| McKee Wells & McKee | Gas |
| Total | 2 |

## PENNSYLVANIA FIELDS

### SUMMARY OF COMPLETED WORK

| | | | | |
|---|---|---|---|---|
| Allegany | | | | |
| Bradford | 4 | | 2 | |
| Middle | 4 | | | |
| Venango | | | | 2 |
| Butler-Armstrong | | | | |
| S W Pennsylvania | | | | |
| West Virginia | | | 2 | |
| N Ohio | | | | |
| Total | | | | |

## CENTRAL OHIO.

### WELLS COMPLETED.

LICKING COUNTY.

| | |
|---|---|
| Granville—Reese, Columbus Nat. G. 1 | Gas |
| Newark—A. Norris, Ohio Fuel Sup. 2 | Gas |
| Washington—Kirkpatrick, J. H. Kirkpatrick 4 | Gas |
| J. Mills, Licking Window Glass 1 | Gas |
| E. Stickle, Licking Window Glass 1 | Gas |
| Licking—G. L. Swartz, Heisey Gas 5 | Gas |
| Total | 6 |

FAIRFIELD COUNTY.

| | |
|---|---|
| Walnut—Mary Fry, Ohio Fuel Supply 1 | Gas |

ASHLAND COUNTY.

| | |
|---|---|
| Green—H. T. Bittinger, Logan G. & F. 1 | Gas |
| Peter Shafer, Logan G. & F. 2 | Gas |
| G. W. Brubaker, Ohio Fuel Supply 1 | Gas |
| Hanover—S. Nyhart, Ohio Fuel Supply 2 | Gas |
| E. Brenesbuhl, Logan G. & F. 1 | Gas |
| Total | 5 |

MEDINA COUNTY.

| | |
|---|---|
| Westfield—F. E. Smith, Logan G. & F. 1 | Gas |

LORAIN COUNTY.

| | |
|---|---|
| Grafton—E. Diemblin, Ohio Fuel Supply 1 | Gas |

WAYNE COUNTY.

| | |
|---|---|
| Congress—E. G. Lingle, Ohio Fuel Sup. 2 | Gas |
| D. Yost, Ohio Fuel Supply 1 | Gas |
| J. B. Grindelsparger, Ohio Fuel Sup. 2 | Gas |
| Mary Gearhart, Medina G. & F. 2 | Gas |
| Chester—J. Hagerman, Logan G. & F. 1 | Gas |
| E. G. Myers, Medina G. & F. 2 | Gas |
| Franklin—G. Franks, Plymouth O. & G. 1 | Gas |
| Cannan—Jas. Hower, Medina G. & F. 1 | Gas |
| Total | 8 |

RICHLAND COUNTY.

| | |
|---|---|
| Worthington—G. Hammond, Ohio Fuel Sup. 1 | Gas |
| Monroe—Peterson, Logan G. & F. 1 | Gas |
| Total | 2 |

CUYAHOGA COUNTY.

| | |
|---|---|
| Dover—G. Lewis, Logan G. & F. 2 | Gas |
| C. Aspin, Logan G. & F. 1 | Gas |
| N. Booker, Kundtz & Hultz 1 | Gas |
| C. Purfitt, Rocky River Dev. 1 | Gas |
| M. Mitchell, Melrose Oil & Gas 1 | Gas |
| Total | 5 |

VINTON COUNTY.

| | |
|---|---|
| Richland—C. M. Gardner, Ohio Fuel Sup. 1 | Gas |
| J. W. Martindale, Ohio Fuel Sup. 1 | Gas |
| Total | 2 |

## KENTUCKY-TENNESSEE.

### WELLS COMPLETED.

POWELL COUNTY.

| | |
|---|---|
| Clay City—Palmer, Unknown 1 | Gas |

GRAYSON COUNTY.

| | |
|---|---|
| Areta—Unknown 1 | Gas |

SIMPSON COUNTY.

| | |
|---|---|
| Peden—Peden, Mike Holleran 1 | Gas |

## KANSAS.

### WELLS COMPLETED.

MONTGOMERY COUNTY.

| | |
|---|---|
| 32-32-15, Love, C. E. Roth 4 | Gas |
| Gas production | 500,000 |

BUTLER COUNTY.

| | |
|---|---|
| El Dorado and Vicinity— | |
| 5-26-5, Marsh, Empire G. & F. 33 | Gas |
| 16-25-5, Robinson, C. B. Shaffer 3 | Gas |
| 5-26-5, Linn, Sinclair Oil & Gas 37 | Gas |
| 5-26-5, Manning, Empire Gas & Fuel 3 | Gas |
| 6-26-5, Barnhill, Empire Gas & Fuel 3 | Gas |
| 2-28-4, King Empire Gas & Fuel 1 | Gas |
| 2-28-4, Collins, Empire Gas & Fuel 1 | Gas |
| 2-28-4, Miller, Empire Gas & Fuel 3 | Gas |
| 9-28-4, Scully, Empire Gas & Fuel 2 | Gas |
| 11-28-4, Wallace, Empire Gas & Fuel 2 | Gas |
| Total | 10 |
| Gas production | 14,000,000 |

NEOSHO COUNTY.

| | |
|---|---|
| 20-28-18, Converse, Moore Bros. 1 | Gas |
| Gas production | 1,000,000 |

## OKLAHOMA.

### WELLS COMPLETED.

WASHINGTON COUNTY.

| | |
|---|---|
| 4-25-13, Halfmoon, Halfmoon Oil 14 | Gas |
| 7-26-12, McGrew, et al. 11 | Gas |
| Total | 2 |
| Gas production | 5,000,000 |

OSAGE DISTRICT.

| | |
|---|---|
| Indian Ter. Ill. Oil 1 | Gas |
| 11-26- 9, American Pipe Line 1 | Gas |
| 25-20-10, Sand Springs, Charles Page 5 | Gas |
| Total | 3 |
| Gas production | 11,000,000 |

CUSHING SHAMROCK

| | | | |
|---|---|---|---|
| [illegible] | [illegible] | Barnett, Cosden Oil & Gas Co. | Gas |
| [illegible] | [illegible] | Ebey, Cosden Oil & Gas Co. | Gas |
| [illegible] | [illegible] | McMan Oil Co. | Gas |

Total 3
Gas production [illegible]

TULSA GLENN POOL WICKY KELLYVILLE

| | | | |
|---|---|---|---|
| [illegible] | [illegible] | Wilcox et al. No. 1 | Gas |
| [illegible] | [illegible] | Sapulpa Fuel Co. No. 1 | Gas |
| [illegible] | [illegible] | Cox et al. No. 1 | Gas |

Total 3
Gas production [illegible]

OKMULGEE MORRIS

| | | | |
|---|---|---|---|
| [illegible] | [illegible] | Haynes, Wigton et al. No. 1 | Gas |
| [illegible] | [illegible] | Kingwood Oil Co. No. 1 | Gas |
| [illegible] | [illegible] | Sampson, Reybold & Co. No. 2 | Gas |

Total 3
Gas production [illegible]

OKFUSKEE MCINTOSH AND CREEK COUNTY WILDCATS

| | | | |
|---|---|---|---|
| [illegible] | [illegible] | Barker, Lyons & Co. No. 1 | Gas |
| [illegible] | [illegible] | Newman et al. No. 1 | Gas |
| [illegible] | [illegible] | Gladys Belle Oil Co. No. 1 | Gas |

Total 3
Gas production [illegible]

WAGONER MUSKOGEE AND ROGERS COUNTIES

| | | | |
|---|---|---|---|
| [illegible] | [illegible] | Pressley, George et al. No. 1 | Gas |
| [illegible] | [illegible] | Kingwood Oil Co. No. 1 | Gas |
| [illegible] | [illegible] | Martin, Henry Oil & Gas Co. No. 2 | Gas |

Total 3
Gas production [illegible]

KAY COUNTY

| | | | |
|---|---|---|---|
| [illegible] | [illegible] | Peate, Junction Oil Co. No. 1 | Gas |
| [illegible] | [illegible] | S. Beaver, Stevens Oil Co. No. 2 | Gas |
| [illegible] | [illegible] | Hinde, Kay & Kirkwood No. 1 | Gas |
| [illegible] | [illegible] | Cooper Oil & Lease Co. No. 1 | Gas |
| [illegible] | [illegible] | Roach, Junction Oil & Gas Co. No. 1 | Gas |
| [illegible] | [illegible] | [illegible] No. 1 | Gas |
| [illegible] | [illegible] | Pressburg, Junction Oil & Gas Co. No. 1 | Gas |
| [illegible] | [illegible] | Bryan, Carter Oil Co. No. 1 | Gas |

Total 8
Gas production [illegible]

WILDCATS

Osage County

| | | | |
|---|---|---|---|
| [illegible] | [illegible] | Bascomb, Quinn Oil & Gas Co. No. 2 | Gas |

Gas production [illegible]

## ARKANSAS

### WELLS COMPLETED

Crawford County

| | | | |
|---|---|---|---|
| [illegible] | [illegible] | Bell, Clear Creek Oil & Gas Co. No. 1 | Gas |
| [illegible] | [illegible] | Lane, Carver et al. No. 1 | Gas |
| [illegible] | [illegible] | Wildcat Oil Co. No. 1 | Gas |
| [illegible] | [illegible] | Clear Creek Oil & Gas Co. No. 1 | Gas |

Total 4
Gas production [illegible]

## KANSAS

### SUMMARY OF COMPLETED WORK

| | [illegible] | Prod. | Dry | Gas |
|---|---|---|---|---|
| Montgomery | [illegible] | [illegible] | 2 | 1 |
| Chautauqua | [illegible] | [illegible] | [illegible] | [illegible] |
| Butler | [illegible] | [illegible] | [illegible] | [illegible] |
| Wilson | [illegible] | [illegible] | [illegible] | [illegible] |
| Neosho | [illegible] | [illegible] | [illegible] | [illegible] |
| Allen | [illegible] | [illegible] | [illegible] | [illegible] |
| Franklin | [illegible] | [illegible] | [illegible] | [illegible] |
| Miami | [illegible] | [illegible] | [illegible] | [illegible] |
| Wildcats | [illegible] | [illegible] | [illegible] | [illegible] |
| Total | [illegible] | [illegible] | [illegible] | [illegible] |

## OKLAHOMA

### SUMMARY OF COMPLETED WORK

| | [illegible] | Prod. | Dry | Gas |
|---|---|---|---|---|
| Cherokee [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| Cherokee [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| Osage | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] Springs | [illegible] | [illegible] | [illegible] | [illegible] |
| Creek | [illegible] | [illegible] | [illegible] | [illegible] |
| Kay County | [illegible] | [illegible] | [illegible] | [illegible] |
| Healdton | [illegible] | [illegible] | [illegible] | [illegible] |
| Wildcats | [illegible] | [illegible] | [illegible] | [illegible] |
| Total | [illegible] | [illegible] | [illegible] | [illegible] |

## MID CONTINENT

### SUMMARY OF COMPLETED WORK

| | [illegible] | Prod. | Dry | Gas |
|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| Kansas | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

## TEXAS PANHANDLE

### WELLS COMPLETED

WILDCATS

| | | | |
|---|---|---|---|
| [illegible] | [illegible] | [illegible] No. 1 | Gas |

Wheeler County

| | | | |
|---|---|---|---|
| [illegible] | [illegible] | [illegible] & Co. No. [illegible] | Gas |

Total 2

## NORTH LOUISIANA.

### WELLS COMPLETED.

| | |
|---|---|
| Caddo— | |
| 31-22-15, Christian, Sun 101 | Gas |
| 9-20-16, Ward, Brown Oil 1 | Gas |
| Texas— | |
| Panola Co., Werner, Gulf Production 2 | Gas |
| Total | 3 |

## GULF COAST REGION.

### WELLS COMPLETED.

BATSON.

| | |
|---|---|
| Milhome, Batson-Milhome Oil 44 | Gas |

MISCELLANEOUS.

| | |
|---|---|
| Duval County, Cudahy et al. 1 | Gas |
| Shelby County, Producers Oil | Gas |
| Total | 2 |

## GULF COAST.

### SUMMARY OF COMPLETED WORK.

| | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Batson | 7 | 665 | 1 | 1 |
| Edgerly | 5 | 7,850 | 0 | 0 |
| Goose Creek | 15 | 9,100 | 2 | 0 |
| Humble | 23 | 6,735 | 7 | 0 |
| Jennings | 6 | 480 | 2 | 0 |
| Markham | 1 | 0 | 1 | 0 |
| Spindletop | 2 | 0 | 2 | 0 |
| Saratoga | 4 | 265 | 0 | 0 |
| Sour Lake | 21 | 15,860 | 9 | 0 |
| Vinton | 4 | 2,600 | 1 | 0 |
| Miscellaneous | 11 | 25 | 8 | 2 |
| Total | 79 | 17,680 | 26 | 3 |

## TEXAS-LOUISIANA.

### SUMMARY OF COMPLETED WORK.

| | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Texas Panhandle | 49 | 1,151 | 8 | 2 |
| North Louisiana | 26 | 420 | 14 | 3 |
| Gulf Coast | 89 | 43,580 | 32 | 0 |
| Total | 79 | 17,680 | 26 | 3 |

## FINANCIAL REPORT.

BY JO. P. CAPPEAU SONS.

**Jan. 1st to Jan. 23rd, Inclusive.**

| Stocks | Open | High | Low | Last |
|---|---|---|---|---|
| Caney River Gas | 46⅞ | 47 | 45½ | 45½ |
| Columbia G. & E. | 42¼ | 47 | 42¼ | 45½ |
| Fayette Gas | .. | .. | .. | 101 |
| Mfg. L. & H. | 64 | 67 | 63½ | 66 |
| Ohio Fuel Supply | 43 | 52¼ | 43¾ | 51 |
| Ohio Fuel Oil | 17¾ | 20¾ | 17¾ | 20¼ |
| Oklahoma Gas | 95 | 100 | 95 | 100 |
| Osage & Oklahoma | 128½ | 121 | 119 | 120 |
| Pgh. Oil & Gas | 11⅞ | 13 | 11⅜ | 12¾ |
| Pure Oil Com. | 21¾ | 22 | 21½ | 21⅞ |
| Cent. Kentucky Gas | .. | .. | .. | 22 |
| Kansas Gas | .. | .. | .. | 35 |
| Lone Star Gas | 98 | 96 | 91 | 91 |
| Union Gas | 185 | 185 | 180½ | 181 |

## STANDARD OIL SUBSIDIARIES.

BY JO. P. CAPPEAU SONS.

**Jan. 1, 1917 to Jan. 24, 1917.**

**Standard Oil Subsidiaries.**

| Par | | Open | High | Low | Last |
|---|---|---|---|---|---|
| £1 | Anglo-American | 17 | 17¼ | 16 | 16¼ |
| $100 | Atlantic Ref. | 990 | 1100 | 990 | 1100 |
| 100 | Borne-Scrymser | 460 | 475 | 460 | 475 |
| 50 | Buckeye Pipe | 110 | 120 | 110 | 116 |
| 100 | Chesebrough | 440 | 440 | 440 | 440 |
| 100 | Colonial | 60 | 60 | 60 | 60 |
| 100 | Continental | 540 | 615 | 540 | 590 |
| 50 | Crescent | 40 | 40 | 40 | 40 |
| 100 | Cumberland | 130 | 130 | 125 | 125 |
| 100 | Eureka | 220 | 220 | 220 | 225 |
| 100 | Galena Com. | 185 | 185 | 182 | 175 |
| 100 | Galena Pref. | 140 | 140 | 140 | 140 |
| 100 | Illinois Pipe | 230 | 247 | 230 | 242 |
| 50 | Indiana Pipe | 110 | 114 | 110 | 112 |
| 12½ | National Transit | 18 | 19 | 18 | 19 |
| 100 | New York Transit | 215 | 230 | 215 | 230 |
| 100 | Northern Pipe | 105 | 105 | 105 | 105 |
| 25 | Ohio Oil | 392 | 393 | 380 | 382 |
| 100 | Prairie Oil | 595 | 670 | 595 | 670 |
| 100 | Prairie Pipe Line | 325 | 330 | 322 | 328 |
| 100 | Solar Refining | 360 | 370 | 350 | 350 |
| 100 | Southern Pipe | 215 | 215 | 215 | 215 |
| 100 | South Penn. Oil | 560 | 567 | 545 | 560 |
| 100 | Southwest Penn Pipe | 110 | 110 | 110 | 110 |
| 100 | S. O. of California | 362 | 385 | 360 | 385 |
| 100 | S. O. of Indiana | 800 | 920 | 800 | 920 |
| 100 | S. O. of Kansas | 565 | 590 | 550 | 560 |
| 100 | S. O. of Kentucky | 760 | 770 | 710 | 710 |
| 100 | S. O. of Nebraska | 550 | 560 | 550 | 550 |
| 100 | S. O. of New Jersey | 700 | 712 | 690 | 695 |
| 100 | S. O. of New York | 267 | 280 | 267 | 280 |
| 100 | S. O. of Ohio | 440 | 535 | 440 | 515 |
| 100 | Swan & Finch | 115 | 120 | 115 | 115 |
| 100 | Union Tank | 93 | 101 | 93 | 95 |
| 100 | Vacuum Oil | 380 | 380 | 370 | 370 |
| 10 | Washington Oil | 40 | 40 | 40 | 40 |
| 25 | Penn-Mex | 60 | 60 | 59 | 60 |
| 5 | Internat'l Petroleum. | 10½ | 12 | 10½ | 12 |

**Independent Oil Companies.**

| | | | | | |
|---|---|---|---|---|---|
| 100 | Cities Service Corp. | 320 | 321 | 305 | 309 |
| 25 | Pierce Oil | 14 | 14½ | 13½ | 14½ |
| 50 | Midwest Refining | 81 | 97 | 80 | 97 |
| 25 | Tropical Oil | 13 | 13½ | 11½ | 11 |
| 5 | Cosden Refining | 17¼ | 18¼ | 16¾ | 16⅞ |
| 5 | Sapulpa Refining | 10 | 11 | 9¾ | 10¾ |
| 5 | Cosden Oil & Gas Com. | 14⅜ | 16¾ | 14⅜ | 14½ |
| 5 | Cosden Oil & Gas Pfd. | 5 | 5¼ | 5 | 5 |
| 5 | Okla. Producing & Refining | 12⅛ | 13⅜ | 12⅛ | 12⅞ |
| 5 | Wayland Oil & Gas. | 4 | 4¾ | 4 | 4¾ |
| 1 | Midwest Oil | 55 | 80 | 55 | 77 |
| | Sinclair Oil & Ref. | 61 | 63¼ | 60½ | 61¾ |

# AROUND THE BELT

**New Wells, New Pipe Lines, New Contracts, Additions and Extensions. A Field of Valuable News Gathered for the Journal Through Many Sources**

## TRADE PERSONALS

It is the intent that the notes appearing under the personal headings are exclusively those of men interested in the production of the natural gas field. Those wishing to learn of matters pertaining to men interested in the field of artificial gas should refer to THE GAS INDUSTRY magazine published at 65 Pearl Street, Buffalo, N. Y., which devotes its columns entirely to articles of gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL each magazine being devoted to the issues in its respective field. In this way each magazine covers its field to the complete interest. **Publisher's Note**

Newman, Earle H. formerly Assistant Cashier of the [illegible] National Bank, Muncie, Ind., is now connected with the Ohio Cities Gas Company, Columbus, Ohio.

Calvert, W. R., Consulting Geologist and Engineer, is now located at the Temple Building, Grand Avenue, Kansas City. Mr. Calvert was formerly at Denver, Colo.

[illegible] Raymond has been elected President of the Pennsylvania Gas Company, Warren, Pa.

Stevens, Sidney D., at the annual meeting of the Rochester Oil & Gas Company, Rochester, N. Y., was elected Vice President.

Thompson, James P., of Washington, D. C., is now a Director of the Federal Oil & Gas Company, operating in Oklahoma.

[illegible], James M., of Butler, Pa., has been elected President of the Federal Oil & Gas Company, which has headquarters in Oklahoma.

[illegible] Division of the Associated Geophysical Engineers in Oklahoma, where he is making an examination of several fields.

[illegible] Snyder, of Kane, Pa., has been elected President of the Vim Rock Gas Company, Oil City, Pa.

[illegible] H., at the annual meeting of the Penn-[illegible] Gas Company, Warren, Pa., was elected Vice President of the Company.

[illegible] A. W., of the Logan Gas & Fuel Company, has been elected Vice President of the Logan Natural Gas & Fuel Company, Logan, W. Va.

[illegible], Louis, Vice President of the Empire State Petroleum Corporation, has resigned to become [illegible], N. Y.

[illegible], Louis W., has been elected President of the Rochester Oil & Gas Company, Rochester, N. Y.

[illegible], H. [illegible], formerly Leasing Agent of the [illegible] Company, has been appointed Superintendent of the Pennsylvania Gas & Fuel Company, with headquarters at [illegible], West Virginia.

[illegible], Alva L., has been appointed Manager of the Gas Department of the Ohio Fuel Gas & Oil Company, Bowling Green, Ohio.

Mr. [illegible], of the Natural Gas Department of the [illegible] Company, has been appointed Superintendent of the Natural Gas Department, with headquarters at [illegible], West Virginia.

McCormick, H. W., of Independence, Kan., is a recent addition to the staff of the Land Department of the Prairie Oil & Gas Company, Tulsa, Okla.

McPherson, C. W., who has for some years been Chief Oil & Gas Inspector for the Federal Bureau of Mines, has resigned from that post.

Manager H. [illegible], of Oil City, at the annual meeting of the Vim Rock Gas Company, was elected Vice President of that concern.

Price, M. M. D., has been elected President of the Price Hall Petroleum Company, which was recently organized at Hartland, West Va.

Schell, Carson W., Engineer, recently completed the work of changing the compressors at the Forman and Thomas compressing stations at Weston, West Va., and installing a new compressor plant for the West Virginia Central Gas Company at the same place. Mr. Schell has designed and installed some of the largest compressor plants in the natural gas centers of the United States.

Snyder, H. L., at the annual meeting of the Eureka Pipe Line Company, Oil City, Pa., was elected Vice President.

Stevens, H. L., of Kane, Pa., was recently elected General Manager of the Vim Rock Gas Company, Oil City, Pa.

Steel, Sayre B., has been elected Vice President of the White & Company, Inc. Mr. Steel was formerly Manager of the Chicago office of the Banking and Brokerage firm of Price, Webber & Co., of Boston.

Lowe, Harry M., of the same, elected President of the Eureka Pipe Line Company, Oil City, Pa.

Van [illegible] Hoag, [illegible], has been elected President of the Kansas Natural Gas Company, a new concern at Hutchinson, Kan.

## DECEASED

[illegible] Springs, N. Y.

[illegible] at Warren, Pa., [illegible] years a prominent [illegible] Gas Company, [illegible] Gas Company, [illegible] Gas Company,

# INCORPORATED

It will be noted that we here specifically point to natural gas companies that have been incorporated. Those desiring to learn of artificial gas companies that have received incorporation papers should refer to THE GAS INDUSTRY magazine, published at 60 Pearl Street, Buffalo, N. Y., which devotes its columns entirely to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being specifically issued for its respective field, thus each rendering 100% efficiency in the industry it covers.—Publisher's Note.

**DELAWARE—Dover**

The Pennsylvania-Ohio Oil and Gas Company has been incorporated under the laws of Delaware. The company is capitalized at $6,000,000. It is set forth in the application that the company proposes to acquire petroleum-bearing lands and develop the same. The incorporators are Herbert E. Latter and Norman P. Coffin of Wilmington, Del., and Clement M. Egner of Elkton, Md.

**NEW YORK—Buffalo**

The South Boundary Oil & Gas Company has been incorporated here with a capital stock of $36,000. The directors are: John Howell, George R. Rothfus, and Nettie Kerker, all of Buualo.

**Rochester**

The Empire State Gas & Petroleum Company has been incorporated here. The officers of the new concern are: President, John J. Leighton; C. A. Dake, Treasurer; Fred Townsend, Secretary; Samuel Cross, Edward D. Marshall, L. A. Anton and William F. Gruby.

**OHIO—Columbus**

The McKay Gas and Oil Company has been incorporated with a capital of $25,000, with Thomas J. McKay and others as incorporators.

**Fremont**

The Imperial Gas Station Company has been incorporated here with a capital stock of $20,000. Among those interested are: Henry Stevens, Fred DeTray, C. A. Peach, Jerome G. Wolf, C. O. Walter.

**PENNSYLVANIA—Imperial**

The McCullough Oil & Gas Company, capital $25,000, has been granted a charter. Those interested in the new concern are: Walter C. Weller, John M. Armour, William S. Irons.

**WEST VIRGINIA—Clarksburg**

The Paramount Oil & Gas Company, capital $100,000, has been incorporated by L. A. Carr, H. D. Talbott, E. E. Stevens, C. C. Doty and I. W. Coffman, of Clarksburg.

**Hartland**

The Price-Hall Petroleum Company has been formed here with a capital of $600,000. M. McD. Price is President of the new concern, which has leased 8,500 acres of gas and oil lands in Nicholas and Clay counties.

**Wellsburg**

The Sunnyside Oil & Gas Company, of Wellsburg, W. Va., has been incorporated at Charleston, W. Va., with a capital of $10,000, for operations in Brooke County. Frank S. King, A. T. Howser, J. Oscar Naylor and L. F. Cronen, of Steubenville, and F. A. Chapman, of Wellsburg, are the incorporators.

# ELECTED

**NEW YORK—Rochester**

At the annual meeting of the Ohio-Rochester Oil & Gas Company, the following directors and officers were elected: Directors, Fred E. Guernsey and Frederick S. Smith of Rochester, John W. Leonard, Sidney B. Donnan, John H. Donnan and Francis D. Leonard of Washington, Pa., and Edward H. Young of Frazeysberg, Ohio. Officers: President, John W. Leonard; Vice-President, Sidney B. Donnan; Treasurer, Fred W. Guernsey; Secretary, Frederick S. Smith.

**PENNSYLVANIA—Oil City**

The Eureka Pipe Line Company at its annual meeting elected officers as follows: Forest M. Towl, President; H. L. Scrafford, Vice-President and General Manager; W. J. Alexander, Vice-President and General Superintendent; E. R. Shepard, Secretary-Treasurer. Officers appointed: C. A. McLouth, Assistant Secretary-Treasurer; E. W. Ziegler, Assistant Secretary-Treasurer; H. C. Dorworth, Solicitor; W. R. Daugherty, General Auditor; Warren Gorton, Real Estate and Tax Agent; A. D. McVey, Superintendent; J. Cochrane, Superintendent.

The Alum Rock Gas Company at its annual meeting elected the following officers: G. S. Hamm, of Knox, Pa., President; H. E. Merritt, of Oil City, Vice-President, and Claude Slicker, of Oil City, Secretary Treasurer. H. J. Slicker, of Knox, was elected General Manager, and H. K. Dietterich, of Knoxfield, Superintendent.

**Butler**

The Federal Oil & Gas Company, in which a number of local persons are interested and whose holdings are in Oklahoma, held a meeting recently at the Fort Pitt Hotel, Pittsburgh.

The officers and directors chosen are as follows: Ex-Judge James M. Galbreath of Butler, President; James P. Eagleson, Washington, Vice-President; J. C. Sutherland, Washington, Secretary and Treasurer; Harry L. Williams, Washington; E. H. Porter, Beaver Falls; Joseph Styber, Pittsburgh; Samuel Garee, Charles E. Baker, Washington; Gordon Montgomery, Poplar Ridge, N. Y.; Theodore Hoffman, Pittsburgh; Benjamin Mossman, Muskogee, Oklahoma, and P. M. Snyder, Pittsburgh, directors.

**Warren**

At the annual meeting of the Pennsylvania Gas Company, the following officers were elected: Raymond Cross, President; J. F. Jefferson, Vice-President; H. H. McConnell, Secretary and Treasurer; W. J. Judge, Comptroller, and L. L. Graham, Land and Tax Agent.

# PER CUBIC FOOT—RATES

It will be noted that the gas rates referred to below are those now charged against city or natural gas rates. Those desiring to secure information regarding gas rates should refer to THE GAS INDUSTRY magazine published at the Pearl Street Buffalo, N. Y. which devotes its columns entirely to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS AND GASOLINE each magazine being exclusively owned for its respective field and each rendering much efficiency to the industry it covers. Publisher's Note

**OHIO—Newark**

Discussing the decision of the United States Supreme Court in regard to the Newark natural gas rate, A. C. Koch of the Logan Natural Gas and Fuel Company has made the following statement. Notwithstanding the fact that under the ordinance granted by the City of Newark in March, 1916, the rate now prevailing there is 25 cents per 1000 cubic feet, which rate in turn will increase to 30 cents and later to 35 cents, an error crept into the telegraphic dispatches from Washington published in various Ohio newspapers this week, to the effect that the United States Supreme Court had sustained an injunction of the Ohio Supreme Court fixing a rate of 18 cents per 1000 cubic feet for natural gas at Newark and restraining the gas company from charging the consumer more than that sum. In reality the decision relates entirely to a controversy which is now past history and has no bearing upon the present rate or ordinance at Newark. The only issue before the Supreme Court was to determine the ownership of an escrow fund established in 1911 and which represented the difference in rates between what the gas company was able and the City of Newark was willing to grant at that time. The mistake of the Washington correspondent was in reporting the low rate which prevailed in bygone years when Newark was the center of a great gas field and making it appear that that rate applies to the present time.

**Portsmouth**

The Portsmouth Gas Company is preparing to raise its rates to meet added expenses. The present rate is 40 cents less 10 per cent for cash. The increase asked is 50 cents per thousand the first year and an added 5 cents each year following for a period of three years making the net rate up to 60 cents per thousand.

**PENNSYLVANIA—Erie**

The Pennsylvania Gas Company has been asked to file with a request for lower rates.

**ONTARIO Hamilton**

The United Gas & Fuel Company is prepared to sell gas to its customers with adequate supply if severe weather is considered, a plant for manufacturing gas and to purchase gas. The rate matter is unplanned as the Company is charging for the manufactured gas the same rate as the natural gas although the rate will be lowered the power of the natural gas is greater while the manufactured rate would be fixed at 50 cents per thousand.

# NEW FRANCHISES

It will be noted that the franchises referred to below are those now charged against city or natural gas companies. Those desiring to secure information regarding gas franchises granted should refer to THE GAS INDUSTRY magazine published at the Pearl Street Buffalo, N. Y. which devotes its columns entirely to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS AND GASOLINE each magazine being exclusively owned for its respective field and each rendering much efficiency to the industry it covers. Publisher's Note

**CALIFORNIA—Bakersfield**

Permission has been asked of the State Rural Road Commission by the Producers Gas & Fuel Company to supply a number of small cities and towns with natural gas. The company is a new one having been incorporated with a capital stock of $100,000.

**OKLAHOMA—Okemah**

The Okemah Gas & Fuel Company was recently organized for the purpose of supplying gas here. The company will shortly file an application for a franchise.

# GENERAL

It will be noted that the items appearing under this heading pertain specifically to natural gas matters. Development in natural gas fields, etc. Those wishing to obtain a knowledge of the various developments going on in gas fields are referred to THE GAS INDUSTRY magazine, published at the Pearl Street Buffalo, N. Y. which devotes its columns exclusively to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS AND GASOLINE each magazine being exclusively owned for its respective field and each therefore rendering much efficiency to the other it covers. Publisher's Note

**ALABAMA—Gadsden County**

Reports have been received of oil and gas being encountered in the Coosa River Oil & Gas Company's well test certain tests in the Etowah district for the purpose of locating oil or gas.

**ARKANSAS—Crawford County**

The Arkansas Fuel & Gas Company has a large gasser in the Van Buren district in Crawford county.

**CALIFORNIA**

The state supreme court has granted gas for the city of Los Angeles a rate of 25 cents per 1000 cubic feet. Gas is now sold at the Los Angeles at the wells.

**Taft**

The Independent Natural Gas Company secured a [illegible] gasser in the Taft district.

**KANSAS—Boston Springs**

The Kansas Natural Gas Company has struck a gasser in the Boston Springs district.

**Eldorado**

The Eldorado Gas Company has been granted a franchise.

**Iola**

The Okla-Kaw Gas & Oil Company, it is said, has taken over the properties of The Quick Oil & Gas Company, A. W. Jordan, and J. O. Nyman, consisting of 1,400 acres of land west of Savonburg. The Okla-Kaw Gas & Oil Company will at once begin development work.

**Newkirk**

The Marland Oil Company has a very good gasser in its test in section 17-28-3, at a depth of 400 feet.

**Wichita**

This city reports that during the recent extreme weather, the gas supply was more than adequate to meet all needs.

**KENTUCKY—Louisville**

It is announced that the Louisville Gas & Electric Company hopes to build another main to West Virginia by next winter in order to supply the market for natural gas which the company has made here, and thus prevent repetitions of the period of gas shortage which afflicted the city during the recent extreme weather.

**LOUISIANA—Monroe**

The Columbia Carbon Company has recently contracted with the Progressive Oil & Gas Company of this city for the delivery of 2,000,000-cubic feet per day, which will be used for the manufacture of carbon and other natural gas by-products. The plant is now under construction, and will cost about $200,000.

**Shreveport**

The officials and employes of the National Supply Company of Kansas, recently held a "Talk-it-Over" meeting, which proved both profitable and entertaining.

**MISSOURI—Poplar Bluff**

On the farm of Thomas Lewis, a good pressure of gas was recently uncovered while drilling for water.

**MONTANA—Saco**

The United States government has set aside 714,240 acres of land in this district for oil and gas development. Thirty-one townships are included in the acreage.

**NEBRASKA—Plattsmouth**

The Carter Oil Company, it is reported, is testing the territory around Nehawa for oil and gas. This company is said to have about 12,000 acres under lease.

**NEW YORK—Bolivar**

The September Oil Company has sold its leases of 800 acres and two producing gas wells at Bellrun to the Eldred Gas Company. The consideration was $6,500.

**Dunkirk**

Sometime ago the Doherty people acquired an option on the interests of the Frost Company of Fredonia, a price said to approximate $500,000. The option has not yet been closed, awaiting, it is said, the favorable action of the Public Service Commission on the matter of merging the companies mentioned above. The deal, it is understood, will shortly be consummated.

A meeting of the directors of the various companies concerned probably will be held in the near future when the formal transfer of the stock will be made and other details of the merger arranged.

About a year ago the Doherty people acquired the South Shore Company and the old Citizens Gas Company of Dunkirk. Since then the main office of the South Shore has been in Dunkirk.

**Pavilion**

The Pavilion Natural Gas Company has a new well in this territory which registers a flow of 800,00 cubic feet.

**Ripley**

A light gasser has been completed here at a considerable depth. It is estimated that the total cost of the well was $10,000.

**Rochester**

The Empire State Gas & Petroleum Company, which was recently granted a charter, and of which John J. Leighton of this city is President, has taken permanent offices in the Central Building. The company has leased property near Canisteo and Adrian, and will soon commence drilling. Two producing gas wells are owned by the concern, the gas from which is being marketed.

**OHIO—Ashland County**

In Green Township the Logan Gas and Fuel Company drilled in a good gas well in a test on the John Mang farm.

**Cincinnati**

A bill has been introduced in the West Virginia Legislature which would impose a heavy tax on exportation of gas from the state, and an additional tax on corporations which operate stations where gas is pumped to points outside the state. Gas interests in Ohio are much concerned over the introduction of this bill, since a law of this kind would cut off the supply of natural gas from a large number of Ohio cities, towns, and villages.

The proposed tax is one-fiftieth of 1 per cent. per 100 feet for each 25 miles the gas is transported within West Virginia and the same amount for each 1,000 feet passing out of the State through pipe line pumping stations or compressors.

**Columbus**

It is reported that the Doherty interests will build a new gas engine compressor station here.

**Columbus**

Thomas J. McKay, who is a strong factor in the McKay Gas & Oil Company, recently incorporated at Columbus, has developed a field just south of Sebring and is furnishing gas to the Sebring potteries. Other wells will be drilled in the vicinity of the present wells by the new company. The company is given as an Alliance incorporation.

**Fairfield County**

In Walnut Township, the Ohio Fuel Supply Company has a good gasser on the J. J. Graves farm.

**Mansfield**

The Medina Gas & Fuel Company, operated by Henry L. Doherty & Company, is building a new compressor station 20 miles east of Mansfield.

**Richland County**

In Washington Township, the Ohio Fuel Supply Company has a large gasser in a test on the E. Weaver farm.

In Monroe Township, the Logan Gas and Fuel Company's second well on the H. & J. Trumpower farm is a light gas well.

**Waynesburg**

The Bromide Oil Company has a 2,000,000-foot gasser on the Thompson farm. The well is being drilled deeper in search of oil.

**OKLAHOMA**

H. M. Byllesby, President; Arthur S. Huey, Vice-President, and J. J. O'Brien, Treasurer, of H. M. Byllesby & Company, accompanied by F. W. Stehr of W. P. Bonbright & Co. and W. R. Thompson, Manager of the Engineering and Construction Department, and F. H. Lane, Manager of the Department of Examinations and Reports, of H. M. Byllesby & Co. recently made a ten day tour of inspection over the Oklahoma utility properties of H. M. Byllesby & Company.

**Arkansas City**

According to a report of the Doherty interests, a car load of gas ranges were sold in this city within the recent past. The Doherty Company is also pushing the sale of gas burning appliances in other cities in this territory.

**Bartlesville**

An attempt is to be made by the Quapaw Gas Company to drill 1,000 feet into the Mississippi lime. This will be the deepest test ever drilled in the Oklahoma fields.

**Bixby**

Rogers and Cox have completed a 10,000,000-foot gasser in section 28-17-13, in their No. 5 test on the Bunger land.

The Tuxedo Oil Company also has a large gasser in section 28-17-13 in No. 4 Bigpond.

**Dilworth**

Dilworth claims the distinction of being the only municipality in Oklahoma to own its own natural gas well. It was the No. 1 well of B. B. Jones on the C. C. Dilworth farm. A complete gas system is now installed here, with gas supplied from this well.

**El Reno**

A contract has been secured by the El Reno Gas & Electric Company under which the company will supply the Rock Island Railroad Company with 12,000,000 cubic feet of gas for heating and boiler fuel.

**Garber**

The automobile is responsible for making transportation in the oil and gas fields more comfortable and convenient. Passengers go by rail to Covington, from which point automobile lines are run on regular schedule to various points in the fields.

**Grady County**

The Sante Fe Company is reported to have completed a 10,000,000-cubic foot well at a depth of 1,210 feet in Section 2-2-5 west, in the southeastern part of the county.

**Kay County**

It is estimated that the Dilworth district in this county is producing about 500,000,000 cubic feet daily.

**Muskogee**

The Grand River Gas Company of this city is negotiating with the Oklahoma Producing Oil Company for its gas holdings in the Kibler field in Arkansas. If the deal is consummated, Muskogee will gain a great additional gas production.

**Oklahoma City**

It is reported that a carbon plant will be constructed and operated here by Walter O'Bannon.

**Pawne**

$150,000 will be expended by this city, it is said, to build a gas plant and distributing system. Natural gas will be sold.

**Payne**

In Section 36-19-5 the Toma Oil Company has a 20,000,000-foot gasser in its No. 1 on school land.

**Shamrock**

The Indian Territory Illuminating Oil Company has two large new gas wells in sections 22-27-10 and 27-27-10.

**Tulsa**

The Osage & Oklahoma Gas Company is having plans prepared for a handsome office building in this city.

**PENNSYLVANIA—Kersey**

The lower formations in the Elk County gas field are to be tested for oil and gas. The test well is to be drilled on the Spleen farm near Kersey, which is a central point, as gas has been struck on all sides of the well. The test well has already been drilled 3,000 feet without any sign of oil or gas. It is the intention of the owners to drill the well at least 4,000 feet.

**Shinglehouse**

The Coneville Chemical Company has a small gasser on the Nichols property in the Eleven Mile Valley.

**Tionesta**

The McCoy Gas Company of Oil City recently purchased the holdings of the Tionesta & Empire Gas Company, and is planning to add materially to the present supply of gas by the construction of a new pipe line to the city.

**Warren**

The Interior Oil & Gas Company has acquired the lease owned by Thatcher & Kay in the Tionesta Creek district. The purchase price is said to have been $50,000. The property includes 16 producing wells, and gasoline plant. There is gasoline production of 35 barrels and gas production of 300,000 cubic feet.

**TEXAS—Houston**

A splendid business is reported by the Houston Gas & Fuel Company. Orders were taken during November for 267 gas room heaters and 39 water heaters. In all branches the company has increased its business over the previous year.

**Mineral Wells**

The name of the Millsap Oil & Gas Company has been changed to that of Parker County Oil & Gas Company.

**Palo Pinto**

The Sinclair Oil & Gas Company has a well estimated at 5,000,000 cubic feet, on the Holt ranch, north of here. The gas was found at a total depth of 1,230, and 30 feet in the sand.

**Petrolia**

The Lone Star Gas Company has completed its gasoline-from-gas plant at this point, and placed it in operation.

**Sour Lake**

An organization has been formed by 250 workers in the local oil and gas field, the purpose of which will be to secure and maintain favorable working conditions.

**WEST VIRGINIA—Braxton County**

In Otter district, the Philadelphia Company's test, on the Louis Bennett farm, is a light gasser.

Leases totaling 2,300 acres in proven territory have been secured by the Victoria Oil Company of Clarksburg. The company will begin development work at once.

**Cabin Creek**

The Ohio Cities Gas Company is erecting a salt plant in the Cabin Creek district, thus adding to its scope in mineral development.

**Calhoun County**

On the Little Kanawha River, Sherman district, the Hope Natural Gas Company drilled a test on the Haning Poling farm through the Maxon sand. It is a fair gasser in that formation.

**Doddridge**

On Patterson Fork, Greenbrier district, Ernest Randolph & Company have a Gordon sand gasser at a test on the W. T. Pepper farm.

On Talkington Fork, McClellan district, the Philadelphia Company's test on the R. H. Robinson farm is a gasser in the Gordon sand.

**Gilmer County**

In Troy district, the Philadelphia Company's test on the L. S. Hall farm is a gasser in the Big Injun sand.

On Trace Fork, Dekalb district, the Hope Natural Gas Company's test on the Isaac Martin farm is a light gasser.

**Harrison County**

In the list of late completions gas wells are conspicuous. On Little Elk Creek, Sardis district, the Hope Natural Gas Company got a fair gasser in the 50-foot sand at its test on the Carry E. Lyans farm.

The Sun Gas Company's No. 3 on the G. M. Thompson farm is a gasser in the fifth sand.

On Jones Run, Sardis district, the Carnegie Natural Gas Company has a light gasser in the Gordon sand at a second test on the John Heldreth farm.

On Big Run, Union district, the Reserve Gas Company drilled in a good fifth sand gasser on the C. W. Smith farm.

**Kanawha**

In the Big Sandy district, the Raven Carbon Company's well on the J. A. Holiey farm is a gasser.

In Cabin Creek district, the Clendenin Gas Company drilled a second test on the David Ward heirs' farm into the Berea grit and developed a gas pressure, estimated to be good for 10,000,000 cubic feet a day.

On Long Bottom Run, Cabin Creek district, West Virginia, the Columbus Producing Company has shot No. 41 on the Williams Coal Company's tract. It is estimated to be good for 80 barrels a day. In addition the well has a strong gas pressure, estimated at 2,000,000 cubic feet a day.

**Marion County**

On Dent's Run, Mannington district, F. W. Bartlett drilled No. 6 on the Z. E. Batson farm through the 30-foot sand and found nothing but a fair gas pressure.

**Monongalia County**

In Clay district, the Hope Natural Gas Company's No. 2, on the Eto Core farm, is a gasser.

On Scotts Run, Battelle district, the Hope Natural Gas Company drilled a second test on the Presley Schriver farm to a depth of 3,187 feet. It is a fair gasser in the Gordon sand.

**Ritchie County**

In Union district, Houke & Brode's second test, on the B. F. Patton heirs' farm, is a light gasser.

In Murphy district, the Hope Natural Gas Company's test on the Weidman heirs' farm is a small gasser in the Big Injun sand.

On White Oak Creek, Union district, the Philadelphia Company's test on the L. S. Hall farm is a fair gasser in the Big Injun sand.

**Roane County**

On Little Creek, Spencer district, the United Fuel Gas Co. completed tests on the F. B. Foster and W. E. Craig farms. Both are light gassers.

On Millers Run, Spencer district, the Spring Creek Oil & Gas Company has a gasser in the Berea grit at its test on the G. M. Sergent farm.

In Geary district, located on Big Sandy Creek, the United Fuel Gas Company has a Big Injun sand gasser at a test on the C. E. Carper farm.

On Frozen Camp Run, Curtis district, the United Fuel Gas Company's test on the N. C. Whited farm is a gasser in the Berea grit.

**Wetzel County**

On Long Drain Run, Church district, the Philadelphia Company drilled a second test on the W. C. Garner farm through the Big Injun sand and found nothing. It is now drilling to the lower sands. On Knob Fork, Center district, the Hope Natural Gas Company's second test on the J. Bookover farm is a gasser in the fourth sand.

**CUBA—Havana**

Word comes from Havana that the Natural Gas & Petroleum Company has completed a well at a depth of 700 feet which is yielding 800,000 cubic feet of gas. In the same section, in another well, a light flow of oil was developed.

**ONTARIO—London**

It is stated that many wells will be drilled in the territory during the present year, and scores of companies are leasing land.

## NEW OFFICES.

With January 2d, the Metric Metal Works of Erie, Pa., opened their Pittsburgh branch office in attractive new quarters, 1303 First National Bank Building.

The rapid growth in popularity of the "Metric's" transfer of the interior mechanism of their trio-case meter, to the *"Everlasting"* cast iron case, has marked an era in that company's service to the field; while a demand in the gasoline extraction industry, is being met by the Westcott Proportional Meter and the Metric's Orifice Meters.

The new offices at Pittsburgh are in charge of Mr. Larmour Adams, familiarly and socially known as "Mike."

**FOR SALE**—45 H. P. 4-cycle automatic Gas Engine. First-class condition. Address G G G Metal Stamping Co., Warren, Pa.

**WANTED**—Young man with ten years experience in construction and operating compressor stations of 2250 H. P. would like position with some good company with chance for advancement. Address 2183 Natural Gas Journal.


# THE MEEK—A "REAL" OVEN

## —Also a "REEL" OVEN -- But "REAL" or "REEL" it is the ORIGINAL MEEK.

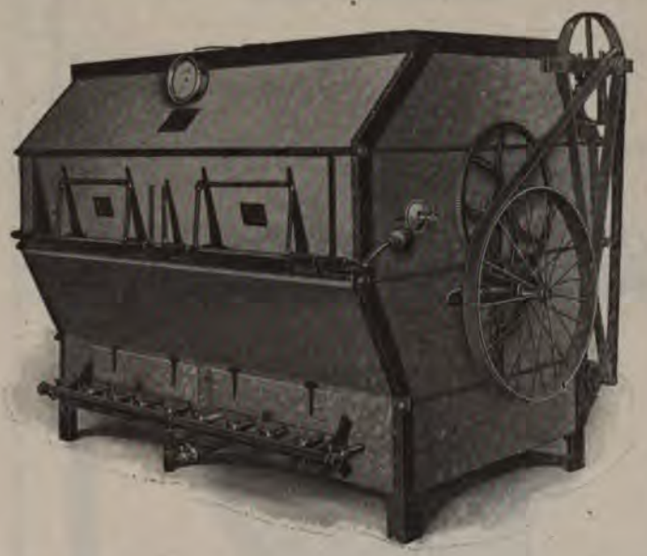
This means SATISFACTION on the customer's part, a good sale for the gas company and profit for both.

**Ask The Man Who's Sold One**

We also make cabinet, core, japan or drying ovens, in any size or type you may desire.

**MEEK OVEN MFG. CO.**

**Newburyport - - Massachusetts**



**END THREADS DAMAGED**
**THREADS ON LEFT SIDE CRUSHED**

Pipe not protected before shipping, often means leaks. INSTRUCT YOUR MILLS to use "COLONA" thread protectors on all pipe shipped to you. Protect your threads, it insures against hours of labor and labor is cash.

***That's why---***

In Egypt one gang laid only a little over seven hundred feet of 6" foreign pipe in a day.

***That is why---***

a similar gang laid thirteen hundred ft. in a day. (6" pipe shipped from U. S.)

**NO DAMAGE TO THREADS**
where *"COLONA"* thread protectors are used **---THAT'S THE REASON!**

**COLONA MFG. CO.,** Vandergrift Bldg. **PITTSBURGH, PA.**

## FOR SALE

**Two second hand White & Middleton twenty horse power gas engines.**

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**The Creamette Company**

**Minneapolis, Minn.**



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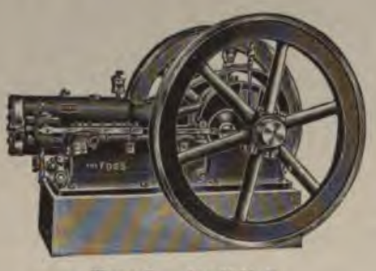

Type S — 4 to 90 H. P.

WITH a record of 16 weeks' continuous non-stop operation at full load, compressor service. This is an engine that will do anything reasonably expected in a power plant and in a number of cases has stood the hardest kind of service for as many as 30 years. This is the result of inbuilt quality and design exclusively characteristic of the Foos Engine.

**The Foos Gas Engine Co.**

SPRINGFIELD, OHIO



# WELDING OUTFITS
# CUTTING OUTFITS

*"No Gas Department can possibly be complete without a welding outfit from this time on."*

The great value of the oxy-acetylene outfit for welding and cutting to the Gas Industry is not confined to welding new gas mains. It is even more valuable in emergency work, for repair work, both in the field and in the shop— saving time, saving cost, saving material that would otherwise be scrapped, and increasing efficiency.

OXY-ACETYLENE WELDING
DAVIS
APPARATUS
DAVIS-BOURNONVILLE CO. N.Y.

**LEADS THE WORLD FOR RANGE, EFFICIENCY, and NUMBER OF OUTFITS IN SUCCESSFUL USE**

The first welded pressure gas mains were welded with Davis Apparatus, and "D-B" outfits are in daily use by those concerns who have made the greatest success of oxy-acetylene welding, both in the Gas Industry and in all metal working lines.

The highest award at the Panama-Pacific Exposition for oxy-acetylene apparatus was given Davis Apparatus, —the Medal of Honor, higher award than the Gold Medal, —in the Collective Gas Exhibit.

*Write for special pipe-welding data and other information of interest to gas engineers and superintendents.*

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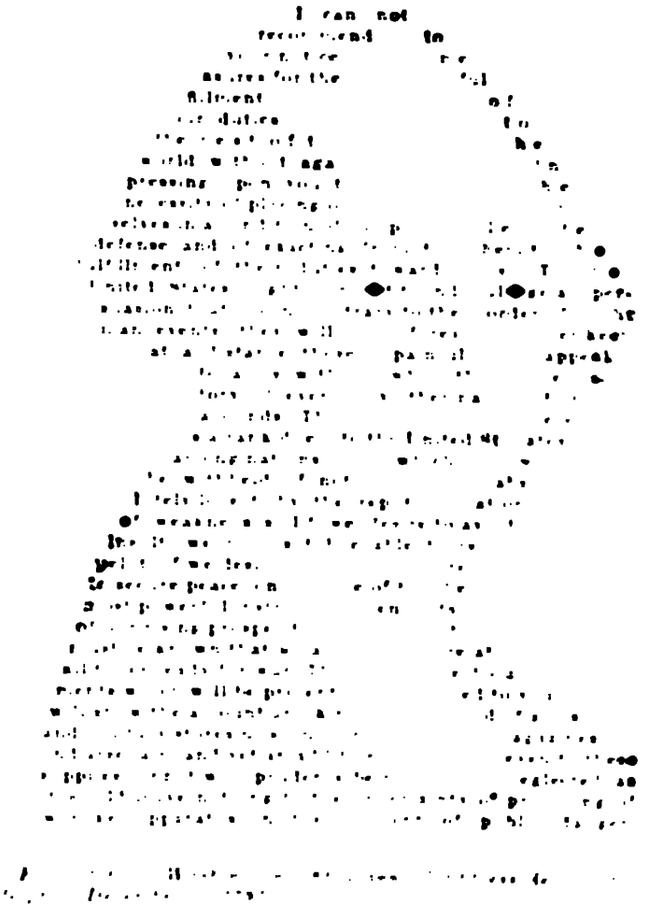
**DAVIS-BOURNONVILLE COMPANY**

**New York Chicago**

**General Offices and Factory: Jersey City, N. J.**

**Sales Offices: New York, Chicago, Detroit, Cleveland, Pittsburgh, Philadelphia, Boston.**



Natural Gas and Gasoline Journal
Buffalo, N. Y., February, 1917

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Packers of special design built to order.
"Oilwell" Packers Always Pack and are sure to give satisfaction.

# OIL WELL SUPPLY CO.

PITTSBURGH, PA.

TAMPICO, MEXICO DASHWOOD HOUSE—LONDON

1917

**Two**
**& Mi**
**powe**

**The**

Type S — 4 to 90 H. P.

WITH a record of 16 weeks' continuous non-stop operation at full load, compressor service. This is an engine that will do anything reasonably expected in a power plant and in a number of cases has stood the hardest kind of service for as many as 30 years. This is the result of inbuilt quality and design exclusively characteristic of the Foos Engine.

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SPRINGFIELD, OHIO

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# EVERYTHING FOR OIL WELLS

"OILWELL" TRADE MARK

BRANCH STORES IN ALL OIL FIELDS

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Packers of special design built to order.

"Oilwell" Packers **Always Pack** and are sure to give satisfaction.

## OIL WELL SUPPLY CO.

PITTSBURGH, PA.

TAMPICO, MEXICO DASHWOOD HOUSE---LONDON

# Natural Gas and Gasoline JOURNAL

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CONTENTS FOR MARCH, 1917

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LUCIUS S. BIGELOW,

Signature of editor, publisher, business manager or owner.

Sworn to and subscribed before me this 21st day of March, 1917.

E. L. REED,

Notary Public in and for Erie County.

Form 3526 c5-6012.
(My commission expires March 30th, 1918.)

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# MEMBERS OF ASSOCIATION OF NATURAL GAS SUPPLY MEN

# COME TO

# MAY 15-17, 1917

## DIRECTORS OF TWO ASSOCIATIONS MEET.

THE Directors of the Natural Gas Association of America held an important meeting in Pittsburgh on the 23rd of February. At the meeting the papers that will be read at the convention in Buffalo next May, were presented for consideration. Other subjects were discussed and the meeting was looked upon as one of decided importance.

The Directors of the Supply Men's Association of this same organization entertained the Directors of the Gas Association at luncheon at the Hotel William Penn. There were also present a number of the leading gas-men, not officers of the Association, the NATURAL GAS and GASOLINE JOURNAL being represented by its editor, by invitation of Mr. David O. Holbrook, President of the Suppy Men's Association.

The luncheon was served in an unexcelled manner and bespoke careful arrangement on the part of Mr. Holbrook who is a past-master in such matters, while able in conducting the affairs of the Supply Men's Association. In this latter he is associated with Mr. Larmour Adams, Secretary, through whose clever work practically all of the exhibition space for next May's meeting has been engaged by manufacturers.

The list of papers to be presented at the Association Convention covers a wide range. Everything however on the list, as might be expected, directly applies to the natural gas enterprise or touches upon the kindred field of gasoline, thus specializing, as does the NATURAL GAS and GASOLINE JOURNAL wholly along these two lines. Thus does the "JOURNAL" parallel the work of the association, without an attempt to straddle other fields, furthermore, like the association, making for 100% efficiency in this specific field.

Lucius S. Bigelow

# FROM THE EDITORIAL MAIL BAG

## RECOVERY OF GASOLINE

### Conservation in the Field of Natural Gas Evolves Methods for Gasoline Recovery

## TALKING OF GASOLINE TONICS.

IN the pages of a contemporary, only shortly since, there appeared an article intended to show autoists the worthlessness of compounds introduced into gasoline for the purpose of producing better results than from feeding gasoline alone.

The article referred to, and what it pictured was intended to ridicule "gasoline tonics," and true it is that many such can rightfully be ridiculed, as can many of the 25-cent tonic applications in barber shops. At the same time, it is generally conceded that spurious metal and paper money is foisted upon the public, because there is money both metal and paper worth all that is claimed for it.

Personally we have not tried other than one type of liquid to be added to gasoline used in motor cars, therefore we cannot speak from personal knowledge of others than this one type of liquid, which might well be termed "a tonic" because of the results, but it is strictly a lubricant.

We have found that a certain small percentage of "Wonder Oil" used in our gasoline tank, gives us results than we were not able to attain through the usual methods of lubrication, and separate gasoline supply.

It is only fair that a matter of this kind should be handled in a conservative manner, thus not to do an injustice to that which may be worth-while, while seeking to do justice to the public at large through sounding a warning against worthless compounds.

A slight bit of "Wonder Oil" placed in the gasoline, provides sprayed or atomized internal lubrication rendering excellent results.

## CHAPLIN-FULTON PRESIDENT.

WHEN Billy McShane Got Mayor" was at one time a popular song. It was not descriptive of how much better conditions were thereafter than prior to his accession to the municipal throne, but as we recall the song, it nevertheless told of how well the municipality was handled after Billy took the reins in hand.

Along exactly this same line we are privileged to record the accession of Mr. W. McKee as President of the Chaplin-Fulton Manufacturing Company, of Pittsburgh, Pa., so widely known in the gas-fields as manufacturers of Fulton Gas Governors and Regulators.

Mr. McKee has, since he entered the field, made numberless friends, not simply among those who deal with his concern, but as well among those who are manufacturers of other gas equipment, that in some instances may even cross the track of that made by the Chaplin-Fulton Company. Under Mr. McKee's guidance as President, the company is assured of a continuance of that same prestige that it gained through the splendid work of Mr. Chaplin, Mr. Fulton, and Mr. C. W. Townsend, the latter Mr. McKee's predecessor as Secretary of the Company, from which office Mr. McKee has stepped into the presidency.

In a recent personal letter received by the editor of the JOURNAL from Mr. Townsend who has retired from business, and is now living in Orlando, Fla., the writer spoke in most enthusiastic terms of the new president of the company. No one knows Mr. McKee better, and knows more of his ability than Mr. Townsend, who was so intimately associated with the sales end of Chaplin-Fulton Company's business for many years, and who during his active career was held in the highest esteem by the gas-men throughout the natural gas industry of the United States.

Both Mr. McKee and his company are to be congratulated.

## DEATH OF PIONEER.

A pioneer with few peers in the oil and natural gas fields of the United States was T. N. Barnsdall, one of the best known men of the industry.

Mr. Barnsdall died of apoplexy in February at Pittsburgh, thus not far from the place of his birth, which was Titusville, Pa., where he was born 67 years ago.

Fifteen millions of dollars is estimated as his wealth. However, though Mr. Barnsdall leaves this as a material monument, his human qualities stand as indicative of that which he has taken to the Beyond.

Mr. Barnsdall was a man with a big heart, generous in the extreme in his treatment of those worthy, and yet not so fortunate as he. He was the benefactor of many men in the industry.

It was oil that attracted Mr. Barnsdall first in his work in this field, but discovering vast quantities of gas, it was his initiative that carried much of this commodity to market through pipe-lines of his constructing.

In this connection we might say that the Cities Service Company which has proved so profitable and efficient, was formed by Henry L. Doherty & Company from a nucleus represented by the Wichita Natural Gas, Quapaw Gas, Indian Territory Illuminating, and other companies. This organization dates from the dealings with Mr. Barnsdall which brought these several companies into the "Cities Service."

The Mid-Continent field became the great stamping ground of Mr. Barnsdall long since, and he was a power in that great section.

Among the boyhood friends of Mr. Barnsdall was Mr. John D. Archbold, late president of the Standard Oil Company, the intimacy of boyhood continuing up to the time when death parted these friends, and it is to be noted that only a few months elapsed between the passing away of Mr. Archbold, President of that enormous industry, known as Standard Oil, and the death of Mr. Barnsdall one representing other gigantic oil and gas conduct.

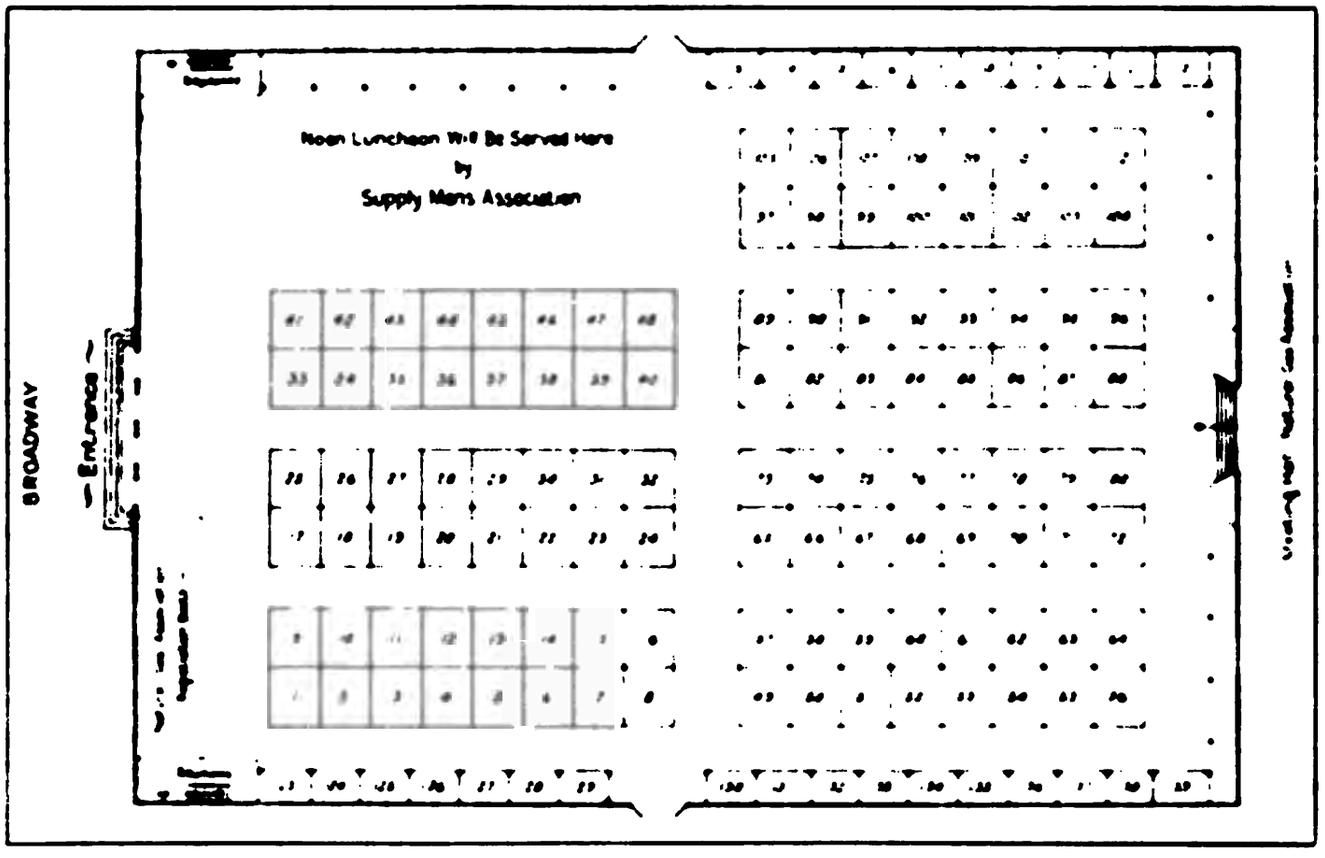
# BUFFALO CONVENTION NEWS

## NATURAL GAS CONVENTION AND SUPPLY MEN'S EXHIBITION

We have concluded to again print the floor plan of the enormous auditorium in Buffalo, largest show house thus far occupied by the Supply Men's Association exhibit of the Natural Gas Association of America.

Although Mr. Larmour Adams, Secretary of the Supply Men's Association reports practically all space taken for the May exhibition, yet to impress upon the gas men of the country the fact that this vast exhibition will be held in Buffalo in May, we show the lay out with the

Nowhere but at Buffalo could the party be taken to witness a more wonderful water scene than that of Niagara and this trip will be to the gas men in attendance, by courtesy of the Supply Men's Association as will be also further entertainment which unless the plan is changed will in part embrace a beefsteak dinner. It was intended this should be held at one of Buffalo's hotels but the plan will probably be changed to one of the large rooms of the Broadway Auditorium, a vast establishment which was formerly the Armories of the 65th Regiment




[illegible]

[illegible] guest that the reader shall picture the [illegible] equipment and supplies of all kinds and that he may [illegible] another mental picture will present [illegible] other gas men inspecting the steps at the rear of the Iroquois Hotel which lead to convention and exhibition halls in which the meetings will be held.

Nowhere [illegible] better facilities been made available [illegible] than at Buffalo and we expect to make it [illegible] that [illegible] attendance thereto. Buffalo's great attractions [illegible] Niagara Falls and the picturesque and [illegible] Niagara River to the head of Lake Ontario will be [illegible] to the visitors without cost to them [illegible] that the Association officers predict a large [illegible] and a rousing [illegible].

[illegible] a [illegible] [illegible] [illegible] the latter area has been [illegible] [illegible] the great exhibition floor.

The papers to be presented were given attention at a recent [illegible] meeting of the Directors of the Association [illegible] Pittsburgh and although the program has not [illegible] completed we know that the papers selected and [illegible] [illegible] a feature of [illegible] things [illegible] of the gas [illegible] having reserved [illegible] attend the [illegible] sessions.

[illegible] Not [illegible] [illegible] [illegible] gas [illegible] [illegible] [illegible] have the members of the Association [illegible] [illegible] [illegible]

thus arriving in Buffalo in a body about 7:30 A. M., on the 14th, to proceed direct to the hotels, where the members will stop, the "Lafayette," the "Statler," or the "Iroquois," and to be ready to proceed by half past nine or ten o'clock to the Broadway Auditorium, there on Monday, the 14th, as proposed, to inspect the exhibits, giving them careful commercial attention and inspection. These exhibits form an interesting educational feature presenting an invaluable phase of the service rendered to members, by the Association.

Midday luncheons will be served at the Broadway Auditorium between morning and afternoon inspection of exhibits or between convention sessions, or between inspection seasons and sessions as the case may be. These luncheons will be free to members by courtesy of the Supply Men's Association.

We ask our readers to watch out for further information that will reach them regarding the assembling of the Association members in Cleveland, enroute to Buffalo, on the 13th of May, to leave Cleveland by steamer on the night of the 13th, as stated.

Before closing this announcement we would say that the fare from Pennsylvania, Ohio, West Virginia, and the western and northwestern sections will not be increased through the boat trip from Clyeveland to Buffalo, but purchasers of tickets may buy *railroad tickets through to Buffalo*, via the Lake Shore & Michigan Southern division of the New York Central Lines, and use those tickets on the steamer from Cleveland to Buffalo, or buy tickets to Cleveland, and then purchase steamer tickets to Buffalo at possibly somewhat of a saving; though under no conditions would railway and steamer transportation tickets thus purchased cost more than railroad tickets through to Buffalo.

As the general excursion season has not started by the 13th of May, the following has been stated by H. R. Rogers, Traffic Manager of the Cleveland & Buffalo Transit steamer line. "Without doubt the Natural Gas Association of America will practically occupy the steamer, as though chartered for its sole accommodation." This will make the evening on the boat an enjoyable one, and all who can so arrange should look forward to making plans to arrive at Cleveland on the 13th, leaving Cleveland by Cleveland & Buffalo steamer that night. Baggage can be checked through to Buffalo all the way by rail, if all rail ticket is purchased, while the passenger himself may change to the boat at Cleveland. Or, if ticket is purchased *by rail* only to Cleveland, baggage should then be transferred direct to Cleveland & Buffalo steamer at Cleveland. Look for final arrangements in the NATURAL GAS and GASOLINE JOURNAL for April.

#### BRING YOUR AUTOMIBLES TO BUFFALO.

Those supply-men and gas-men living within running distance of Cleveland, will find fine roads from the Pittsburgh territory, from the Ohio region, etc., and if they come by motor car to Cleveland, their cars up to and including 127-inch wheel base will be carried by steamer Cleveland to Buffalo one way $5.00, round trip $9.00. Rate for cars over 127 inches wheel $9.00 one way, $15.00 two ways. Good returning any time during the season.

The roads between Cleveland and Buffalo are not good, and the expense would be as great to run a car by road between these two cities as to bring it by steamer.

The roads about Buffalo are superb. The road to Niagara Falls is paved all the way with brick. The roads about Niagara Falls most excellent. Bring your motor cars.

## BUFFALO HOTELS.

THE rates at the three leading hotels for the period of the Convention of the Natural Gas Association are given below. Reservations should be made by addressing the hotels direct.

#### LAFAYETTE HOTEL.

Rooms without bath, $1.50 and $2.00 for one person, and $2.50 and $3.00 for two persons.

Rooms with bath, $2.50, $3.00 and $3.50 for one person and $4.00, $5.00 and $6.00 for two persons.

#### HOTEL STATLER.

Room with shower bath only, for one person, $1.50 and $2.00 per day; for two persons, $3.00 per day—with twin beds, $4.00 per day.

Room with tub and shower bath, for one person, $2.50 to $5.00 per day; for two persons, $4.00 to $6.00 per day—with twin beds, $5.00 to $7.00 per day.

Two connecting rooms, for two persons, $5.00 to $10.00; for four persons, $8.00 to $12.00 per day.

Suites of parlor, bedroom and bath (tub and shower), $8.00 to $15.00. Private dining room and additional bedroom (connecting) may be secured, if desired.

Sample rooms, with tub and shower, for one person, $3.00 and $4.00; for two persons, $4.50 to $6.00.

#### IROQUOIS HOTEL.

One person: Room with tub bath, $3.00 to $5.00; room with shower bath, $2.50 to $3.00; room without bath, $2.00 to $3.00.

Two persons: Room with tub bath, $5.00 to $7.00; room with shower bath, $4.00 to $5.00; room without bath, $3.00 to $4.00.

Two connecting rooms with bath, two persons, $6.00 to $8.00; four persons, $10.00 to $12.00.

Suites: Parlor, bedroom and bath, one person, $8.00 to $10.00; two persons, $10.00 to $12.00.

## THOMAS A. EDISON SAYS:

"Problems in human engineering will receive during the coming years the same genius and attention which the nineteenth century gave to the more material forms of engineering.

"We have laid good foundations for industrial prosperity. Now we want to assure the happiness and growth of the workers through vocational education and vocational guidance and wisely managed employment departments. A great field for industrial experimentation and statesmanship is opening up."

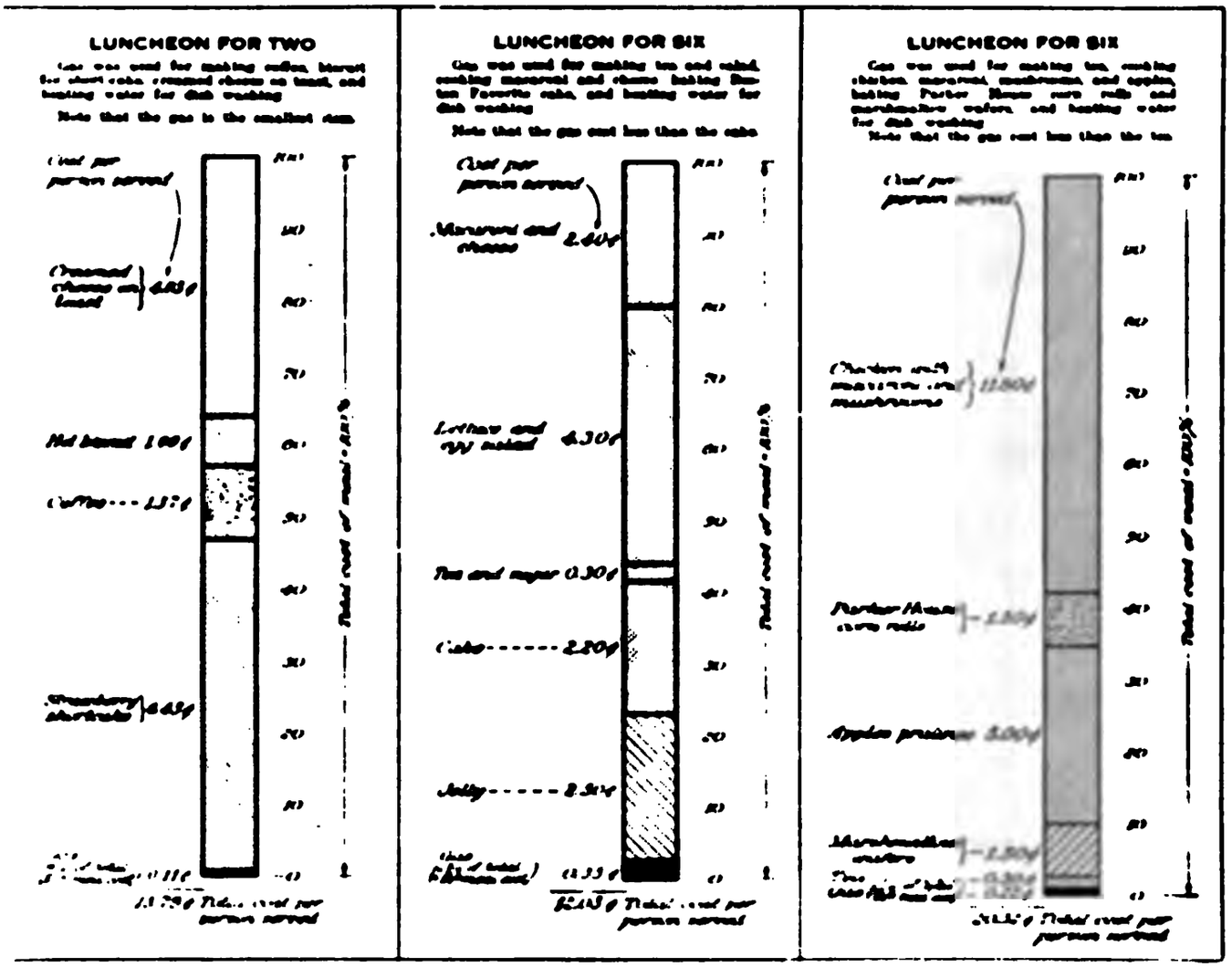
# LOW COST OF NATURAL GAS SERVICE

**Showing From Tests Made By Anne MacGregor Payne,**
**Director Dept. of Home Economics, Ohio State Journal**

[illegible] Published by SAMUEL S. WYER [illegible]

WHILE the community at large is complaining of the high cost of living and the national government is instigating investigations (so-called probes) to get at this matter it seems just and fair to the natural gas interests of the United States to bring before the public the hand that has maintained a price to the public same as before the enormous advances in other commodities ever since the every day living took place.

Interesting percentages [illegible] chargeable to gas are shown in comparisons made in the following article. Although these are based on natural gas rates yet evidence will be found that applies in favor of what is being done by artificial gas companies.


LUNCHEON FOR TWO
Gas was used for making coffee, heating for short rabs, creaming cheese on toast, and heating water for dish washing
Note that the gas is the smallest item
Cost per person served
Creaming cheese on toast 0.03¢
Hot biscuit 1.00¢
Coffee --- 1.37¢
Strawberry shortcake 0.43¢
Total cost of meal 4.83¢
LUNCHEON FOR SIX
Gas was used for making tea and cocoa, cooking macaroni and cheese baking Boston Tea Favorite cake, and heating water for dish washing
Note that the gas cost less than the cake
Cost per person served
Macaroni and cheese 2.40¢
Lettuce and oil salad 0.30¢
Tea and sugar 0.30¢
Cake ------ 2.50¢
Jelly ----- 0.30¢
Total cost of meal 6.33¢
LUNCHEON FOR SIX
Gas was used for making tea, cooking chicken, macaroni, mushrooms and apples, baking Parker House rolls and marshmallow cakes, and heating water for dish washing
Note that the gas cost less than the tea
Cost per person served
Chicken and mushrooms 11.00¢
Parker House rolls 2.00¢
Apples and sugar 3.00¢
Marshmallow cakes 2.00¢
Tea and sugar 0.30¢
Cocoa 0.20¢
Total cost of meal 18.50¢

[illegible]

the Ohio State Journal model kitchen at the Ohio State Journal office. The range was fitted with a gas meter having a dial reading to 1-10 cubic foot. The gas was computed at 40c net per "1,000" cubic feet.

All toast was made in the broiling oven of the gas range. Sugar and cream were always included with the coffee and tea costs. Everything used was measured or weighed, and the gas includes the heating of water in kettles on the range for dish washing purposes.

The costs in cents per person served are given opposite the gas and various food items. The relative per cent. represented by the various items, of the total meal cost, is shown by the diagram at the right of the list of items served in the meal.

These tests show conclusively that the cost of natural gas service for cooking is relatively a small part of the total family expenses, and emphasize the smallness of some of the municipal political campaigns that have been waged to lower natural gas rates.

**If you would talk to your prospect about your goods like you do to a friend about your favorite sport—you would make a clean-up.**

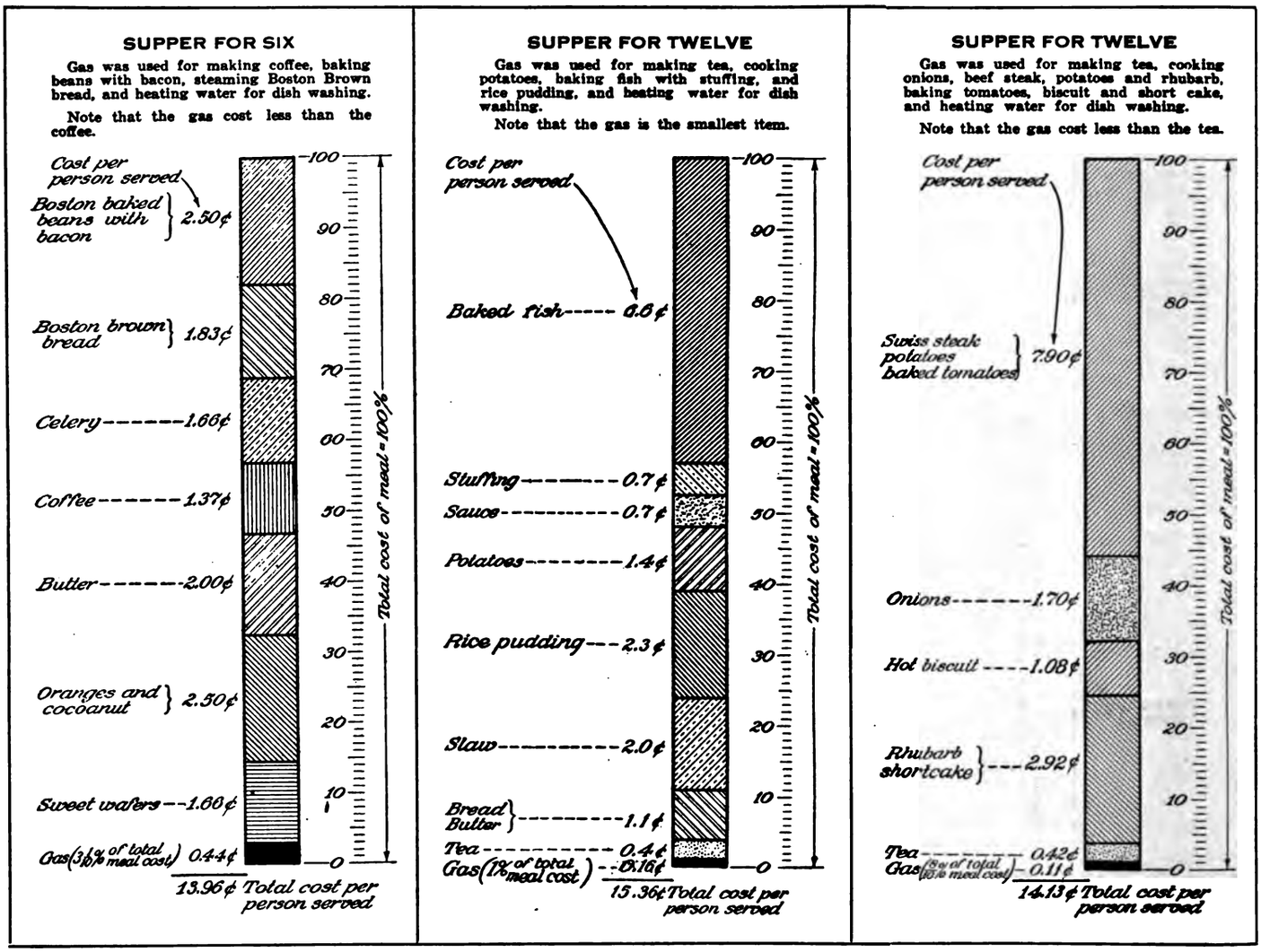
## A TIMELY SUGGESTION.

The foregoing illustrations and descriptive matter regarding the high cost of living *as not produced by natural gas,* one can readily see, if printed in leaflet form and made available to gas companies in large lots at a very low figure, for distribution with gas bills, would make a fine "trench" for all gas-men whose companies have this winter found it impossible to serve their patrons, even to their bare necessities at certain periods during the cold weather.

It would be especially desirable right at this time to distribute these leaflets:

First, since the community having been driven to make complaint because of shortage of gas, now needs something to counteract such complaint.

Second, because we should be paving the way to an increased price per thousand cubic feet for natural gas. This leaflet would be a clever means to that end, which must sooner or later come to pass. Even now in the artificial gas field, they are discussing the need for increasing the price of gas, and how to accomplish it, and we could show by these illustrations and accompanying


SUPPER FOR SIX
Gas was used for making coffee, baking beans with bacon, steaming Boston Brown bread, and heating water for dish washing.
Note that the gas cost less than the coffee.
Cost per person served
Boston baked beans with bacon 2.50¢
Boston brown bread 1.83¢
Celery 1.66¢
Coffee 1.37¢
Butter 2.00¢
Oranges and cocoanut 2.50¢
Sweet wafers 1.66¢
Gas(3⅓% of total meal cost) 0.44¢
13.96¢ Total cost per person served
Total cost of meal = 100%
SUPPER FOR TWELVE
Gas was used for making tea, cooking potatoes, baking fish with stuffing, and rice pudding, and heating water for dish washing.
Note that the gas is the smallest item.
Cost per person served
Baked fish 6.6¢
Stuffing 0.7¢
Sauce 0.7¢
Potatoes 1.4¢
Rice pudding 2.3¢
Slaw 2.0¢
Bread Butter 1.1¢
Tea 0.4¢
Gas(1% of total meal cost) 0.16¢
15.36¢ Total cost per person served
Total cost of meal = 100%
SUPPER FOR TWELVE
Gas was used for making tea, cooking onions, beef steak, potatoes and rhubarb, baking tomatoes, biscuit and short cake, and heating water for dish washing.
Note that the gas cost less than the tea.
Cost per person served
Swiss steak potatoes baked tomatoes 7.90¢
Onions 1.70¢
Hot biscuit 1.08¢
Rhubarb shortcake 2.92¢
Tea 0.42¢
Gas(2⅔% of total meal cost) 0.11¢
14.13¢ Total cost per person served
Total cost of meal = 100%

reading matter that natural gas has held till the last require an increase in price. Would not this be helpful?

We have suggested that it would be a good idea if such leaflets were printed, we have done this to pave the way to the statement that such leaflets are now available in any quantity desired by gas companies for distribution with their gas bills.

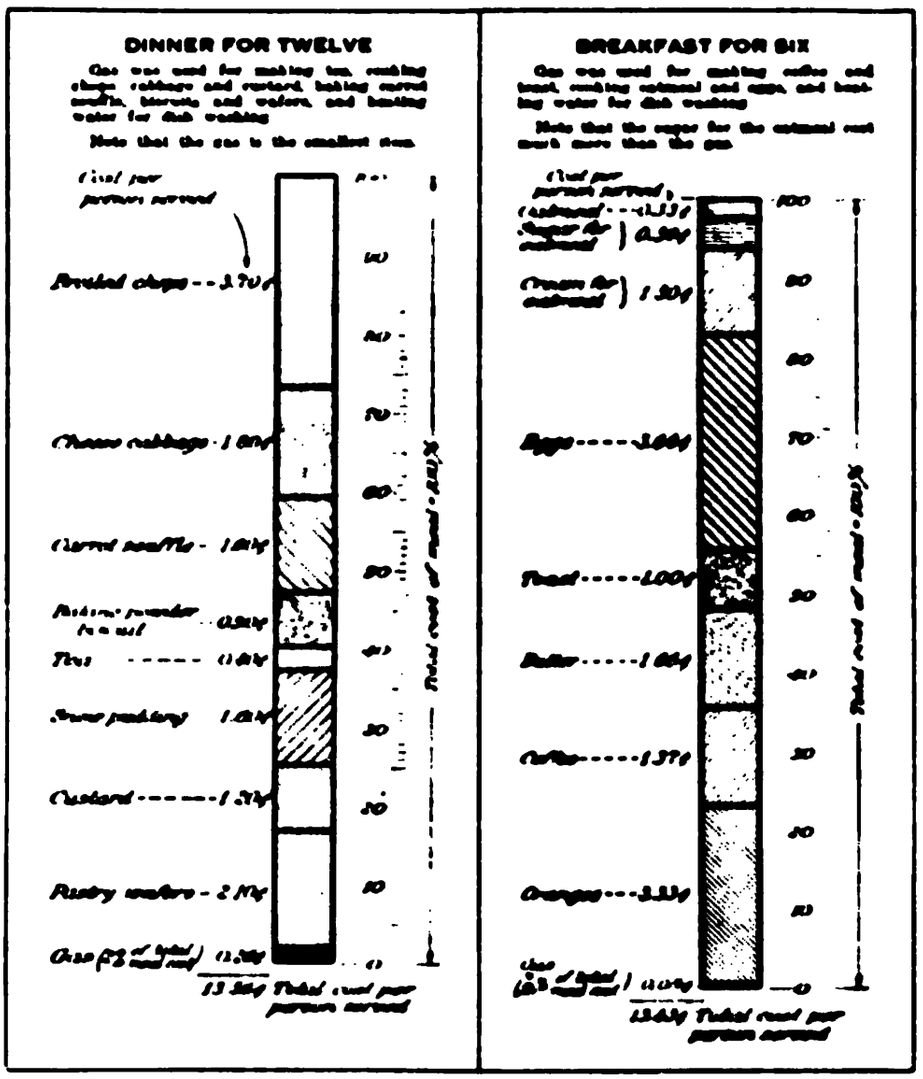
Here is an opportunity for the gas company to make a hit with the public at a very nominal cost. How many thousand copies of the leaflet will your company wish?

Address: Natural Gas and Gasoline Journal

A platform was built about the pipe which prevented the sheep from coming directly under this great flame but the heat extending out over the flock kept the sheep from suffering from the intense cold.

## NOT A HIGH FLIER

THE Cities Service Company is not one of those high fliers that one hears warn his friends against but is an organization composed of remunerative units well coupled in a general organization carefully planned and splendidly conducted


DINNER FOR TWELVE
Gas was used for making tea, cooking chops, cabbage and custard, baking stewed apples, biscuits and cakes, and heating water for dish washing
Note that the gas is the smallest item
Cost per person served
Broiled chops---3.7¢
Cheese cabbage---1.6¢
Stewed apples---1.2¢
Custard---1.5¢
Rarebit sauce---2.1¢
Total cost of meal---13.5¢
13.5¢ Total cost per person served
BREAKFAST FOR SIX
Gas was used for making coffee and toast, cooking oatmeal and eggs, and heating water for dish washing
Note that the sugar for the oatmeal cost much more than the gas
Cost per person served
Eggs---3.6¢
Toast---1.0¢
Butter---1.6¢
Coffee---1.3¢
Oatmeal---3.3¢
13.5¢ Total cost per person served

## NATURAL GAS KEEPS SHEEP WARM

IN a recent experiment using natural gas a certain manufacturer took advantage of the element to keep his sheep warm in intensely cold weather. A large pipe was erected in a vertical position at a reasonable height above the ground at the center of which a circular spreader was arranged so as to distribute the flame in the form of a fan. Several holes were drilled extending at an angle outwardly from the pipe.

A platform was built about the pipe which prevented the sheep from coming directly under this great flame but the heat extending out over the flock kept the sheep from suffering from the intense cold.

# VALVES TO CORRECT A FAULT

## Marked Change in Design is Found in New Valve.

FROM the Pacific Coast come drawings and photographs of a new valve by D. E. Keppelmann, General Superintendent, Gas Distribution, of the Pacific Gas & Electric Company.

One is not surprised at receiving data regarding new developments from the Pacific end of our country. It was there that high pressure gas transmission was brought to high standard in connection with the great Panama-Pacific Exposition by the Pacific Gas & Electric Company.

Those gas-men who attended, and those who read of the exhibition are well posted on the splendid gas illumination through gas under high pressure, that became a notable feature of the exhibition. Mr. Keppelmann describes the new valve as follows:

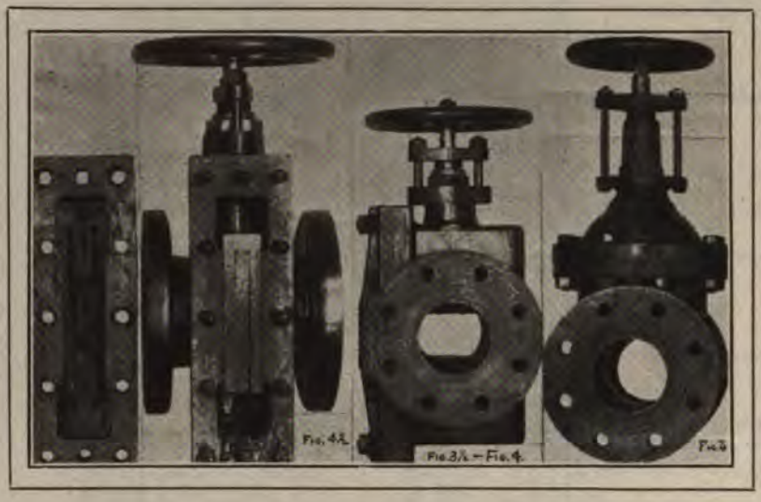
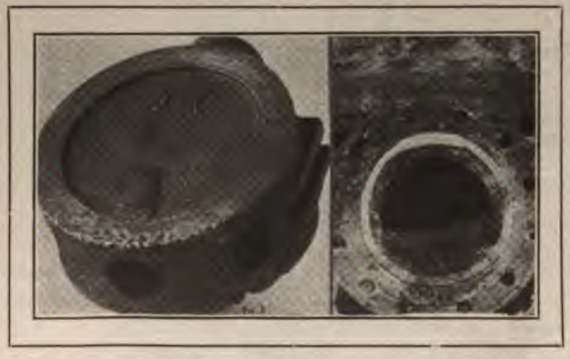



Figure 1 shows accumulation of foreign matter in a valve of other construction; the groove in the bottom of valve formed a trap for deposits, preventing the closing of the valve.



He cites the feature that when valves are needed they are needed badly, and when they cannot be closed, it is frequently a serious proposition. He says:

"The opening and closing feature consists of a solid wedge with a port constantly riding on its seats located in the sides of the valve, creating a clean opening through the valve compensating for all wear, and eliminating the groove feature.

"This makes it a self-cleaning valve, for with the valve open, it presents a clean surface flush with the body of the valve; consequently, the foreign matter rides through, making it possible to close the valve whenever necessary.

"When the Improved Valve is closed, the foreign matter will accumulate against the wedge, but simultaneously with the lifhting of the wedge this accumulation is cut from the wedge and carried through the valve by the liquid or gaseous substances in the line."

Referring to figure 2 and to high pressure service, Mr. Keppelmann stated, "This is a disc removed showing how high pressures score the disc, causing the valve to leak. Heretofore a by-pass has been compulsory to equalize the pressure on both sides of the disc before raising the disc. The by-pass being neglected, results in scoring the seats, creating leaks and rendering worthless, valves costing thousands of dollars and possibly becoming a direct cause of many near fatalities with men working in heavy laden gaseous atmospheres.

"Many times we have been compelled to shut off as many as four valves in a line, to hold the pressures while work continues. Even then the leak through has been sufficient to drop the town back of us, leaving many consumers without gas until repair or construction work has been completed.

"With the Improved Valve, no by-pass is necessary, the seats are never exposed to the elements passing through, hence scoring is impossible, eliminating leakage from this cause.

"Figure 3 shows a former style gate-valve and Figure 3½ the new Improved Valve. Observe the relative size of a 4-inch former style, compared with a 4-inch new style. With the one style the ratio of cost of manufacture and of installation and maintenance, increases, whereas, in the new style the ratio decreases.

Its self cleaning feature and its non wearing seats are a feature

Figure 1, 2, 3 and 4, show the Improved Valve in end and side view, and working parts

This valve can be used for gas, water, steam, oil and acids under low, medium, or high pressures adapts itself to a quick opening and closing valve with but slight change in its construction

The new valve will not stick after being installed will not necessitate leverage to raise discs, no twisted stems creating large repair cost. A pressure equivalent to three tons was exerted against the wedge and the wedge disengaged without any effort whatsoever

The new valve can be installed in the line in any position whatsoever for the wedge constantly rubs on its seats in a guide together with the pressure exerted by two elliptical springs absolutely prevents sagging of the wedge at all times when open or closed

Patents have been taken out and it is purposed to put this valve upon the market

## A CONSUMERS' HANDBOOK

### Pocket Size in Convenient Form Issued by Oklahoma Gas & Electric Co

THE Oklahoma Gas & Electric Company, of Oklahoma City, has brought out a very useful pocket size handbook in which among other excellent features suggestions appeared concerning the use of natural gas, and by permission of that company we are reprinting the matter in order that companies in other cities may, if they choose with certain modifications if these are found desirable make use of this same in advising the peoples of their cities. The matter in the booklet reads as follows

### SUGGESTIONS CONCERNING THE USE OF NATURAL GAS

The company has no control over or responsibility for piping or appliances on the premises of the customer delivered to the customer at the property line

Natural gas is not dangerous when properly used

In case of escaping gas immediately extinguish all lights except electric lights, open the windows and doors and NOTIFY THE COMPANY. Do not attempt to locate a leak with a lighted match or open fire

Near the meter there is a cut-cock by which the gas may be turned off

No gas burning appliance should be connected with rubber flexible tubing. Iron pipe is the only safe connection. Install the union in the pipe line between the meter and the appliance

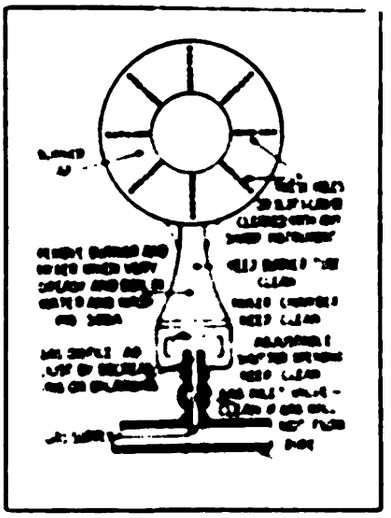
Every gas burning heater or heating appliance should be connected to flue connection for carrying off the products of combustion. Failure to do this may result in asphyxiation. Gas ranges as above mentioned are ordinarily vented into the room. Gas stoves, heaters, water heaters and furnaces must be connected to a flue and in such manner as to provide a free outlet for all fumes of escaping gas

The yellow, unburned natural gas flame should be changed to blue. If it will not burn blue the MAIN GAS COCK should be turned off and the gas company notified. It may require adjustment, or the gas appliance is at fault. This is also true of room heaters in general. There are however, certain heaters that work perfectly when burning a yellow flame. We caution our customers against the use of any heater or gas burning device without a flue for a room full of burned gas is as dangerous to enter as is one full of unburned gas

No gas will give satisfactory service in case of neglected appliances or through house pipe too small to pass a sufficient quantity of gas

Always be sure that oven burners are turned off when not lighted in order to avoid the accumulation of gas in the oven and the resulting possibility of explosion. The vent or flue pipe from the ovens should never be covered or allowed to be stopped up, otherwise similar conditions may result

Illustrations are shown herewith of the ordinary top burner of a gas range or cook stove with the parts plainly indicated. Burners on modern gas ranges are



be easily removed for cleaning. After cleaning the holes or slots in the burner ring boiling in a solution of water and washing soda will thoroughly clean the apparatus

If the gas is not flashback or burn on the inner tube too much air is being admitted to the mixer. Another [illegible] adjust the shutter

If the gas is not burning properly, the air supply is shut off

Every gas [illegible] for safety and convenience [illegible] heating

## CONSIDERATE ANNOUNCEMENT.

MR. J. M. GARARD, Second Vice-President and General Manager of the Ohio Fuel Supply Company, Columbus, Ohio, took occasion prior to the period of shortage of gas in cities served by his and other companies, to direct the attention of the public of Columbus to *a probability of a shortage of gas during the approaching winter.*

Thus the citizens of Columbus were forewarned in the spirit of consideration, a most clever move on the part of Mr. Garard.

We reprint the letter, by courtesy of these Columbus friends. It reads as follows:

The Ohio Fuel Supply Company
52 West Gay Street
Columbus, Ohio.

J. M. GARARD,
SECOND VICE PRES. & GEN'L MGR.

November 24, 1916.

Gentlemen:

On account of the unprecedented demand made on us by our domestic consumers, I regret to inform you that in all probability your supply of gas during the coming winter will be very irregular.

Due to the high price and shortage of coal, practically every resident of the cities and villages where we supply gas is now using our commodity, with the result that we are called upon to furnish gas for domestic use far beyond our expectations; in fact, the demand has increased to such an extent that I am certain we will require all of our available gas to meet the needs of consumers of that class.

We are drilling a large number of wells and extending our lines, but even in this we have been handicapped, due to our inability to secure delivery of material and machinery. However, I am afraid these additional wells and lines will not relieve the situation materially so far as the industrial consumers are concerned. We are anxious to do and will do everything possible to help out the various factories, but as you, no doubt, are aware, our domestic consumers have prior rights, and only our surplus gas can be furnished to the industrial trade.

No one regrets this state of affairs more than our company, for we have always found pride in the statement that the Ohio Fuel Supply Company have taken better care of their consumers than any other gas company. I assure you we will use our best efforts to help you in any emergency, but there will probably be many times this winter when your entire supply of gas will be practically shut off.

Yours very truly,

J. M. Garard

## MEETING OF BUREAU OF STANDARDS.

REPRESENTING the Natural Gas-Association of America at a meeting of the Bureau of Standards at Washington recently, those named by the Association were S. S. Wyer, Arthur Corwin, Dr. J. B. Garner, and Association Resident Secretary, David O. Holbrook.

The meeting was a joint one, held by the Bureau of Mines, and the Bureau of Standards, with the purpose of formulating recommendations with a view to standardizing the gasoline product, and furthermore, to determine upon who should have the right to enforce such regulations, whether Federal, State or municipal governments.

# N. C. G. A. AND A. G. I. COMMITTEES

**Conferences Are Planned by the Two National Associations Through Special Committees Appointed by their Respective Public-Relations Committees**

THE National Commercial Gas Association Public Relations Committee and the Public Relations Committee of the American Gas Institute, to simplify matters, have created conferring committees of four members each that will consider a plan by which the two national gas associations may come to a more cooperative service.

The American Gas Institute special committee is composed of Mr. Edward G. Cowles of the Peoples' Gas Light & Coke Company, Chicago, Chairman, with Mr. [illegible] King, U. G. I., Philadelphia, S. K. Chase, Chicago, W. Cullen Morris, Consolidated, New York, and A. M. Barnes, Gas Company, Cambridge, Mass., as associates.

The National Gas Association Public Relations Committee has appointed Mr. J. N. M. Carter, Public Service, New Jersey, Chairman, with J. N. Wrightington, Boston Consolidated, E. S. Young, Public Service, Newark, Frank W. Darnall, Vice President, Henry L. Doherty & Company, New York, and W. Carter Corbett, Philadelphia.

[illegible] Clyde Jones, years since Secretary of the old [illegible] Light Association, present Secretary, Natural [illegible] Association of America, located Delaware, Ohio, has been appointed the odd number member, the choice being left to the two Chairmen.

[illegible] the outcome of what was started on its way at President Janssen Haines' dinner, given at Atlantic City [illegible] November, to the directors of the National Commercial Gas Association, the directors of the Manufacturers Section of the N. C. G. A., the officers of these [illegible] leaders and various prominent gas men, interested in welfare respectively and jointly of the National Commercial Gas Association and the American Gas Institute.

[illegible] has been a suggestion made that the Natural [illegible] Association of America should come into this committee. It is possible that it may do so in some executive capacity. But the interests of that Association are so entirely different from those of the other of the associations that its operations would have to be entirely separate and apart from those of the associations.

[illegible] the case held the subjects are entirely worthless [illegible] Those on the Institute section are [illegible] graduates of some technical institute. The Boston [illegible] The Boston are now at very least as [illegible] with those of natural gas. No gas men are [illegible] from artificial gas. Low pressure systems [illegible] up at [illegible] higher rates than natural gas per cubic foot [illegible].

[illegible] the other hand, the men of the natural gas companies [illegible] in the field and in charge of the [illegible] of the gas. These are usually men who [illegible] the business in the field through [illegible] earlier than the professors. Furthermore [illegible] natural gas and all pressures are high pressure [illegible] at the point of delivery to the consumer are high, pressures of gasoline [illegible] is [illegible] impossible [illegible] a part of the [illegible] gas [illegible] pressures is not practicable [illegible].

The subjects are [illegible] of the [illegible] during Prohibition [illegible] the [illegible] gas [illegible] and the [illegible] of the [illegible] things that are with the exception [illegible] of the [illegible] which is unknown in the natural field. Therefore the differences are so great that [illegible] the two [illegible] matters, unless perhaps as we have [illegible] in an executive manner.

The exhibits of supplies at Headquarters [illegible] with the Natural Gas Association are also [illegible] to the annual with the exception of a few devices.

The exhibits of supplies and devices held in connection with the Natural Gas Association are [illegible]. The next exhibit we will be held in Buffalo in May at which occupy the vast floor space of the Auditorium covering what was formerly a drill field for the 65th Regiment.

It is not our purpose to discourage any [illegible] amalgamation that should exist in the Natural Gas Association we are simply pointing out the differences that have placed a wide gulf between the two industries.

Nothing can be done in the way of cooperative interests between the National Commercial Gas Association and the American Gas Institute that would be [illegible] unless [illegible] the Natural Commercial Association and remain as a matter of [illegible] Such a move as is now being [illegible] was a [illegible] and [illegible] the [illegible] and does not [illegible] those who [illegible] that [illegible] the [illegible] of the American Gas Institute.

It was the [illegible] general [illegible] the National Commercial Gas Association [illegible] to [illegible] an analogous matter [illegible] Western Gas Association [illegible] Light Association [illegible] the American Gas Association [illegible] the American Gas Institute.

The [illegible] the [illegible] National Commercial [illegible] are [illegible] [illegible] [illegible]

under consideration was suggested not only verbally, but in print, eleven years ago by the Editor of THE GAS INDUSTRY magazine.

The final analysis will undoubtedly find means for the establishing of that which will be limitless in its power, supreme in its representation, and having untold strength to resist threatened inroads of competition, legislation, etc.

## SERVICE ESSENTIAL TO NATURAL GAS INDUSTRY.

**Henry L. Doherty Believes Its Future Lies in Educating the Producer and Consumer on this Point.**

IN direct contrast to the other members of the public utility family, the majority of natural gas operators do not appreciate the meaning of "service," according to Henry L. Doherty, who recently paid a visit to the natural gas fields of Kansas and Oklahoma. Correspondingly the consumer of natural gas does not get any service with the result that a feeling of antagonism exists.

"This attitude on the part of the consumer is not unnatural, but to a great extent is justified," said Mr. Doherty. "The average natural gas man puts gas into the mains and names a price that will sell the product, and which in nearly every instance is too low. When gas is abundant all well and good, but with the coming of severe weather and a falling off of the gas supply, those consumers farthest away from the producing wells and on branch lines have their supply cut off, and take it pretty hard. The whole solution is limiting the consumption in accordance with the supply of gas available, and placing a price on the gas which will be inclusive of a service charge."

"In rendering this service the natural gas companies will be compelled to drill a number of additional wells, using only those which will supply the demand, holding the remainder in reserve by mudding them. These reserve wells should be drawn on only when any of the regular wells fail to deliver, and at the utmost would not be in use more than 60 to 80 hours during a year. If such a program were followed I think the service charge would meet with very little opposition. People will pay for service no matter what it costs.

"The manner in which some manufacturers waste natural gas is criminal," said Mr. Doherty. "Two causes are responsible for this condition: Inefficiency of the appliance used and cheapness of the gas. A step in the right direction would be teaching the manufacturer conservation of the gas by a lessened consumption brought about by a more efficient appliance being used."

Mr. Doherty believed that the large investment in pipelines and other materials in the natural gas business could be offset to some degree by a standard of B. t. u.'s in a cubic foot of gas at 800. According to a Kansas statute, the minimum amount set is 850 B. t. u.'s. The gas served by the Doherty organization in that State ranges from 680 to 1050 B. t. u.'s.

The establishment of differential rates, in Mr. Doherty's opinion, would effectively solve the fuel gas situation, and in this connection the enlistment of the Bureau of Standards at Washington to thoroughly study this matter would help clear up the controversy.

## WEST VIRGINIA GEOLOGICAL SURVEY.

**New Publication.**

THERE has just been issued from the press a very important and interesting publication by the West Virginia Geological Survey, Morgantown, W. Va. This publication is described in the following extract from the printed circular of the Survey and the reader is also told how to secure the same:

(26) *Detailed Report on Jefferson, Berkeley and Morgan Counties*, comprising the Eastern Panhandle of the State, by G. P. Grimsley, issued under date of December 30, 1916, containing 644 pages + xxvi pages of introductory matter, illustrated with 37 half-tone plates and 20 figures or zinc etchings in the text, one of which shows cross-sections of the geologic formations, and accompanied with a separate case of topographic and geologic maps of the entire area, also a separate map showing the belts of pure limestone. This area contains vast deposits of the purest limestones in the country as also immense deposits of pure dolomites and vast quantities of glass-sands, besides many other valuable and interesting mineral deposits, numerous analyses of all of which are given in the volume. Price, including case of maps, delivery charges paid by the Survey, $2.50, but for combination price with other publications, see general circular. Extra copies of geologic map, $1.00 each, and of the topographic map, 50 cents each. Address West Virginia Geological Survey, P. O. Box 848, Morgantown, W. Va.

## WHY ARE RUBBER CONNECTIONS ON GAS HOSE OFTEN DISASTROUS.

FIRST—The child, the dog or the cat may knock the hose loose from the metal connection on to which the rubber end is slipped.

Second—Rubber hose connections soon become hard and brittle, and then easily crack, allowing the gas to escape.

A metal connection is the right and proper thing, in case flexible tubing is used.

In many instances, rubber hose is used for gas connections in furnished room houses, where transients are coming and going. In like places the very cheapest makes of hose are installed, and the very cheapest types of gas heaters are used. Both are a menace and both reflect discredit upon the gas business when an accident occurs, resulting perhaps, in the death of one or more who have been occupying rooms thus supplied with heat.

Every effort should be made to get solid connections installed and to have flue connections in all rooms in transient houses.

# RESULTS OF DRILLING—LATEST REPORTS

## PENNSYLVANIA FIELD.

### ALLEGANY FIELD

Lamphere Empire Glass Gas

### BRADFORD FIELD

[illegible] Gas

### MIDDLE FIELD

T & W Ord, Citizens Bank et Gas
[illegible] D Farren & Co Gas
Carson
Coates Wm Hess et al Gas

Total 3

### VENANGO CLARION

McKissick Dempseytown Gas Gas

### BUTLER AND ARMSTRONG

Reddick Work & Bean Gas
West Shore Bean et al Gas
Chesapeake Campbell Heckman et al Gas
Wister H Etheridge & Co Gas

Total 4

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## SOUTHWEST PENNSYLVANIA

Washington
McClelland Peoples Gas Gas
Sagamore
Wright McClay & Co Gas
Imperial
McCormack J F Leonard & Co 8 Gas
Sewickley Ferry
Phillips Crescent Oil & Co Gas
Midtown
Malone T W Phillips & Co Gas
Fahlman Bros American Nat Gas
Mt Moreno
Peart Meighen Phila Gas
Powell Bros Phila Gas

Total 8

## WEST VIRGINIA

Mannington
Hildreth Carnegie Gas Gas
Thompson Sun Gas Gas
Funk Hope Gas Gas
[illegible] Philadelphia Gas
Rose Sr Philadelphia Gas
Henderson Pgh & W Va Gas
West Hope Gas Gas
Core Hope Gas Gas
Henderson Pgh & W Va Gas
Cunningham Sr Penn Oil Gas
Sandgrass Carnegie Gas Gas
Jones Bros Carnegie Gas Gas
Higginbotham Mtn I & H Gas
Barring Philadelphia Gas
Pepper & Randolph Gas
Shriver Hope Gas Gas
Camp Bros Hope Gas Gas
Wetzel and Tyler
Armstrong Mtn I & H Gas
Crosby Hope Gas Gas
Hansom Philadelphia Gas
Ihrie Carnegie Gas Gas
Robinson Sr Penn Oil Gas
Shaw Mtn I & H Gas
Davis Pgh & W Va Gas
Steele Larimer O & G Gas
Marshall County
Mackey Carnegie Gas Gas
Farr Carnegie Gas Gas
W C Farr Carnegie Gas Gas
Ritchie County
Woodman Hope Gas Gas
Dotson Hope Gas Gas
Gaynor Hope Gas Gas
Calhoun County
Whipkey & Calhoun Gas
Hall & Calhoun Gas
Poling Hope Gas Gas
Kanawha County
Ward Clendening Gas Gas

Total 11

## SOUTHEASTERN OHIO

Tuscarawas County
O'Donnell Mas Jaffee Gas
Carroll County
Kelly, Amer Gas Gas
Belmont County
Rouse Middleton & Co Gas
McMillan Myers H Gallagher & Co Gas

Total 4

## PENNSYLVANIA FIELDS

### SUMMARY OF COMPLETED WORK

| Field | Comp | Prod | Dry | Gas |
|---|---|---|---|---|
| Allegany | [illegible] | [illegible] | [illegible] | 1 |
| Bradford | [illegible] | [illegible] | 1 | 1 |
| Middle Field | [illegible] | [illegible] | [illegible] | [illegible] |
| Venango Clarion | [illegible] | [illegible] | [illegible] | 1 |
| Butler Armstrong | [illegible] | [illegible] | [illegible] | [illegible] |
| S W Pennsylvania | [illegible] | [illegible] | [illegible] | [illegible] |
| West Virginia | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| Total | [illegible] | [illegible] | [illegible] | [illegible] |

## CENTRAL OHIO

### LICKING COUNTY

Newark [illegible] Gas
Washington [illegible] Gas
Licking [illegible] Gas
[illegible] Gas

Total 4

### FAIRFIELD COUNTY

Walnut [illegible] Gas

### ASHLAND COUNTY

[illegible] Gas
J M Poe Logan & Co Gas
William Hamm [illegible] Gas
[illegible] Gas

Vermillion—Hawks, Ohio Fuel Sup. 1 ..... Gas
Oscar Sigler, Ohio Fuel Supply 1 ..... Gas
Perry—F. E. Mohrman, Logan G. & F. 3 ..... Gas

Total ..... 7

**MEDINA COUNTY.**

York—D. M. Holcomb, Logan G. & F. 1 ..... Gas
Westfield—G. Garman, Ohio Fuel Sup. 1 ..... Gas
Lafayette—Hanchey, Medina G. & F. 1 ..... Gas

Total ..... 3

**WAYNE COUNTY.**

Congress—E. M. Sullenberger, Logan Gas & Fuel 1 .. Gas
J. Y. Dennis, Logan G. & F. 1 ..... Gas
E. G. Lingle, Ohio Fuel Supply 4 ..... Gas
Mahala George, Ohio Fuel Supply 1 ..... Gas
A. L. McDermitt, Medina Gas & Fuel 1 ..... Gas
Franklin—Fahr, Buckeye State Gas 2 ..... Gas
J. R. Snyder, Hopewell Gas 1 ..... Gas
Cannan—C. F. Martin, Ohio Fuel Sup. 1 ..... Gas
J. R. Schilling, Logan Gas & Fuel 1 ..... Gas

Total ..... 9

**RICHLAND COUNTY.**

Worthington—E. Weaver, Ohio Fuel 1 ..... Gas
Monroe—Trumpower, Logan G. & F. 2 ..... Gas
John H. Rowe, Logan G. & Fuel 2 ..... Gas

Total ..... 3

**CUYAHOGA COUNTY.**

Dover—Ward & Hurd, East Ohio Gas 1 ..... Gas
S. Laughlin, Melrose Oil & Gas 1 ..... Gas

Total ..... 2

**VINTON COUNTY.**

Richland—J. W. Gardner, Ohio Fuel S. 1 ..... Gas
Henry Waldron, Ohio Fuel Supply 1 ..... Gas

Total ..... 2

## CENTRAL OHIO FIELD.

**SUMMARY OF COMPLETED WORK.**

| Field | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Licking | 5 | 0 | 1 | 4 |
| Fairfield | 1 | 0 | 0 | 1 |
| Knox | 0 | 0 | 0 | 0 |
| Ashland | 8 | 0 | 1 | 7 |
| Medina | 3 | 0 | 0 | 3 |
| Lorain | 0 | 0 | 0 | 0 |
| Wayne | 11 | 0 | 2 | 9 |
| Richland | 3 | 0 | 0 | 3 |
| Cuyahoga | 3 | 45 | 0 | 2 |
| Vinton | 5 | 10 | 1 | 2 |
| Hocking | 2 | 0 | 2 | 0 |
| Coshocton | 0 | 0 | 0 | 0 |
| Perry | 0 | 0 | 0 | 0 |
| Total | 41 | 55 | 7 | 31 |

## INDIANA FIELD.

**GIBSON COUNTY.**

Washington—High School Plat, Taylor & Co. 1 ..... Gas

**CARTER COUNTY.**

Denton—Joe Burdette, Big Chance O. G. Min. Co. 1. Gas

**LINCOLN COUNTY.**

Parlor Grove, Shuler, Daniel Boone Oil 1 ..... Gas

## KANSAS.

**BUTLER COUNTY.**

7-26- 5, Opperman, Southwestern Pet. 4 ..... Gas
27-28- 4, Brown, Monitor O. & G. 3 ..... Gas

Total ..... 2
Production ..... 3,000,000

**WILDCATS.**

Labette County—
13-33-18, Smith, unknown 1 ..... Gas

Production ..... 1,000,000

## OKLAHOMA.

**WASHINGTON COUNTY.**

36-27-13, On fee, Cora Exploration 15 ..... Gas
4-25-13, Holland, Halfmoon Oil 6 ..... Gas

Total ..... 2
Production ..... 5,000,000

**BIRD CREEK, VERA.**

2-21-12, McSpadden, Jones Gas 12 ..... Gas
19-20-13, Lloyd, Producers Oil 6 ..... Gas

Total ..... 2
Production ..... 14,000,000

**OSAGE DISTRICT.**

1-22-10, Edgar Gas 1 ..... Gas

Production ..... 4,000,000

**CLEVELAND, PAWNEE COUNTY, MANNFORD.**

36-21- 7, School land, Cosden O. & G. 4 ..... Gas

Production ..... 2,000,000

**CUSHING-SHAMROCK.**

28-17- 7, Billy, Prairie O. & G. 1 ..... Gas
33-17- 7, Dunson, Sinclair O. & G. 34 ..... Gas
9-16- 7, Focht, Magnolia Pet. 2 ..... Gas

Total ..... 3
Production ..... 12,000,000

**TULSA, GLENN POOL, WICEY, KELLYVILLE.**

28-17-13, Big Pond, Reed et al. 4 ..... Gas
35-17-14, Bills, New York Oil 1 ..... Gas
34-18-11, Tiger, Sapulpa Field Oil 1 ..... Gas
13-18-12, Ishmal, Okla. State Oil 12 ..... Gas
27-16-12, Colman, Carter Oil 1 ..... Gas

Total ..... 5
Production ..... 16,000,000

**OKMULGEE-MORRIS.**

24-12-11, Rentie, Hornett et al. 1 ..... Gas

Production ..... 2,000,000

**OKFUSGEE, McINTOSH AND CREEK COUNTY WILDCATS.**

10-12-13, Manuel, Western Carbon 4 ..... Gas
10-12-13, Drew, Smith et al. 3 ..... Gas

Total ..... 2
Production ..... 5,000,000

**BALD HILL-BOOCK SAND.**

10-14-14, Stevens, Magnolia Pet. 12 ..... Gas
10-14-14, Dill, Magnolia Pet. 14 ..... Gas

Total ..... 2
Production ..... 5,500,000

### WAGONER, MUSKOGEE AND ROGERS COUNTY

Gas
Gas
Gas
Gas

Total
Production

### HEALDTON CARTER COUNTY

Gas
Gas
Gas

Total

Production

### WILDCATS

Payne County
Gas
Noble County
Gas
Le Flore County
Gas
Pittsburgh County
Gas
Gas

Total
Production

## ARKANSAS

### WELLS COMPLETED.

Crawford County—
Gas
Gas
Gas
Gas
Gas
Gas
Gas

Total
Production

## KANSAS

### SUMMARY OF COMPLETED WORK

| Field | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Montgomery | | | | |
| Chautauqua | | | | |
| Butler | | | | |
| Wilson | | | | |
| Neosho | | | | |
| Miami | | | | |
| Allen | | | | |
| Franklin | | | | |
| Wildcats | | | | |
| Total | | | | |

## OKLAHOMA

### SUMMARY OF COMPLETED WORK

| Field | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Cherokee dist. | | | | |
| Cherokee dist. | | | | |
| Osage | | | | |
| Cleveland | | | | |
| Cushing Shamrock | | | | |
| Creek | | | | |
| Healdton | | | | |
| Wildcats | | | | |
| Total | | | | |

## MID-CONTINENT

### SUMMARY OF COMPLETED WORK

| Field | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Oklahoma | | | | |
| Kansas | | | | |
| Arkansas | | | | |
| Total | | | | |

## TEXAS PANHANDLE

### WILDCATS

Polo Pinto County, Strawn
Gas
Gas
Mineral Wells
Gas
Gas
Stephens County
Gas

Total

## NORTH LOUISIANA

Caddo
Gas
Gas
Gas
Miscellaneous
Gas
Gas
Gas

Total

## NORTH LOUISIANA

### SUMMARY OF COMPLETED WORK

| Field | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Caddo | | | | |
| De Soto | | | | |
| Red River | | | | |
| Bossier | | | | |
| Texas | | | | |
| Miscellaneous | | | | |
| Total | | | | |

## GULF COAST REGION

### BAYOU

Gas

### GOOSE CREEK

Gas
Gas
Gas
Gas

Total

**HUMBLE.**

| | |
|---|---|
| Hermann, Producers Oil 136 | Gas |
| Bender, Hancock Oil 2 | Gas |
| Bender, International Oil 2 | Gas |
| Total | 4 |

**MARKHAM.**

| | |
|---|---|
| Gray, Producers Oil 1 | Gas |

**MISCELLANEOUS.**

| | |
|---|---|
| Shelby—Shelbyville, Producers Oil | Gas |

## GULF COAST.

**SUMMARY OF COMPLETED WORK.**

| Field | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Batson | 5 | 150 | 1 | 1 |
| Edgerly | 6 | 7,800 | 0 | 0 |
| Goose Creek | 15 | 15,250 | 3 | 3 |
| Humble | 34 | 6,520 | 12 | 3 |
| Jennings | 2 | 205 | 0 | 0 |
| Markham | 2 | 75 | 0 | 1 |
| Spindleton | 2 | 55 | 0 | 0 |
| Saratoga | 1 | 0 | 1 | 0 |
| Sour Lake | 16 | 11,610 | 1 | 0 |
| Vinton | 4 | 200 | 3 | 0 |
| Miscellaneous | 14 | 0 | 12 | 2 |
| Total | 101 | 41,865 | 33 | 10 |

## TEXAS-LOUISIANA.

**SUMMARY OF COMPLETED WORK.**

| Field | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Texas Panhandle | 48 | 3,864 | 6 | 5 |
| North Louisiana | 41 | 1,220 | 16 | 6 |
| Gulf Coast | 101 | 41,865 | 33 | 10 |
| Total | 190 | 46,949 | 55 | 21 |

## STANDARD OIL SUBSIDIARIES.

**From Feb. 1st to Feb. 20th, Inclusive.**

BY JO. P. CAPPEAU SONS.

| Par | | Open | High | Low | Closing Last |
|---|---|---|---|---|---|
| £1 | Anglo-American | 16½ | 16¾ | 15½ | 15½ |
| $100 | Atlantic Ref. | 1120 | 1170 | 980 | 1070 |
| 100 | Borne-Scrymser | 475 | 475 | 450 | 450 |
| 50 | Buckeye Pipe | 114 | 114 | 103 | 106 |
| 100 | Chesebrough | 440 | 440 | 400 | 400 |
| 100 | Colonial | 60 | 60 | 50 | 50 |
| 100 | Continental | 615 | 630 | 550 | 590 |
| 50 | Crescent | 40 | 49 | 35 | 37 |
| 100 | Cumberland | 125 | 135 | 115 | 135 |
| 100 | Eureka | 225 | 225 | 215 | 215 |
| 100 | Galena, Com. | 175 | 175 | 150 | 165 |
| 100 | Galena, Pref. | 140 | 140 | 140 | 140 |
| 100 | Illinois Pipe | 245 | 245 | 220 | 239 |
| 50 | Indiana Pipe | 108 | 108 | 95 | 100 |
| 12½ | National Transit | 18 | 19 | 17 | 18 |
| 100 | New York Transit | 235 | 235 | 210 | 210 |
| 100 | Northern Pipe | 105 | 107 | 95 | 95 |
| 25 | Ohio Oil | 402 | 402 | 370 | 390 |
| 100 | Prairie Oil | 680 | 695 | 575 | 608 |
| 100 | Prairie Pipe Line | 338 | 338 | 290 | 325 |
| 100 | Solar Refining | 390 | 410 | 350 | 360 |
| 100 | Southern Pipe | 212 | 212 | 194 | 195 |
| 100 | South Penn. Oil | 585 | 590 | 525 | XD335 |
| 100 | South West Penn. Pipe. | 110 | 110 | 105 | 105 |
| 100 | S. O. of California | 402 | 427 | XD298 | 303 |
| 100 | S. O. of Indiana | 920 | 940 | 830 | 875 |
| 100 | S. O. of Kansas | 600 | 615 | 525 | 570 |
| 100 | S. O. of Kentucky | 740 | 740 | 690 | 700 |
| 100 | S. O. of Nebraska | 610 | 610 | 550 | 590 |
| 100 | S. O. of New Jersey | 792 | 792 | 670 | 687 |
| 100 | S. O. of New York | 328 | 336 | 277 | 292 |
| 100 | S. O. of Ohio | 525 | 525 | 440 | 440 |
| 100 | Swan & Finch | 115 | 115 | 105 | 105 |
| 100 | Union Tank | 99 | 99 | 85 | 94 |
| 100 | Vacuum Oil | 450 | 475 | 380 | 435 |
| 10 | Washington Oil | 40 | 40 | 30 | 30 |
| 25 | Penn-Mex. | 60 | 60 | 55 | 55 |
| 5 | Internat'l Petroleum | 12⅞ | 13 | 11 | 12⅛ |

**INDEPENDENT OIL COMPANIES.**

| | | | | | |
|---|---|---|---|---|---|
| 100 | Cities Service Corp. | 302 | 302 | 220 | 275 |
| 25 | Pierce Oil | 14 | 14¾ | 11 | 12¼ |
| 50 | Midwest Refining | 95 | 95 | 82 | 94 |
| 25 | Tropical Oil | 10½ | 10½ | 9⅞ | 10⅛ |
| 5 | Cosden Refining | 16⅝ | 16⅝ | 14½ | 15 |
| 5 | Sapulpa Refining | 10¾ | 10¾ | 8¾ | 10 |
| 5 | Cosden Oil & Gas, Com | 14 | 14⅞ | 13½ | 14¼ |
| 5 | Cosden Oil & Gas, Pfd. | 4⅞ | 5 | 4¾ | 5 |
| 5 | Okla. Prod. & Refining. | 12½ | 12⅝ | 10¾ | 10⅞ |
| 5 | Wayland Oil & Gas. | 4½ | 4¾ | 4 | 4½ |
| 1 | Midwest Oil | 72 | 72 | 64 | 68 |
| | Sinclair Oil & Refining. | 61⅜ | 62 | 49½ | 56⅞ |

## FINANCIAL REPORT.

**From Feb. 1st to Feb. 20th, Inclusive.**

BY JO. P. CAPPEAU SONS.

| Stocks | Sales | Open | High | Low | Last | Closing Bid | Ask |
|---|---|---|---|---|---|---|---|
| Caney River Gas | 830 | 47¼ | 47½ | 41¾ | 45 | .. | 44¾ |
| Columbia G. & E. | 665 | 46 | 45 | 35 | 41¼ | .. | .. |
| Fayette Gas | ... | .. | .. | .. | 101 | .. | 123 |
| Mfg. L. & H. | 2922 | 67½ | 67⅞ | 63¾ | 63¾ | 63½ | 64 |
| Ohio Fuel Supply. | 63531 | 52 | 54 | 51 | 53½ | 53 | 53⅜ |
| Ohio Fuel Oil. | 10298 | 21 | 22⅞ | 19 | 20⅞ | 20¾ | 20⅞ |
| Oklahoma Gas | 848 | 100 | 100 | 95 | 95 | .. | .. |
| Osage & Oklahoma | 80 | 125 | 126 | 121 | 125 | .. | .. |
| Pgh. Oil & Gas. | 2668 | 12¼ | 12¾ | 11 | 12½ | 12⅝ | .. |
| Pure Oil Com. | 8881 | 21⅞ | 22⅛ | 19¾ | 20¾ | 20½ | .. |
| Cen. Kentucky Gas | ... | .. | .. | .. | 22 | .. | .. |
| Kansas Gas | ... | .. | .. | .. | 35 | .. | .. |
| Lone Star Gas | 233 | 95 | 96 | 92 | 93 | .. | .. |
| Union Gas | 720 | 183 | 183½ | 180 | 183 | .. | .. |
| *Tropical Oil | ... | .. | .. | .. | .. | 10 | 10⅛ |
| *Penn. Mex. | ... | .. | .. | .. | .. | 50 | 54 |
| *Gulf Oil | ... | .. | .. | .. | .. | 380 | .. |
| *Osage & Hominy. | ... | .. | .. | .. | .. | 8⅞ | 9⅛ |
| *Oklahoma P. & R. | ... | .. | .. | .. | .. | 10⅞ | 11⅛ |
| *Cosden Oil & Gas Com. | ... | .. | .. | .. | .. | 14⅞ | 15⅛ |
| *Cosden Oil & Gas Pref. | ... | .. | .. | .. | .. | 5 | 5¼ |
| *Cosden & Co. | ... | .. | .. | .. | .. | 15½ | 15¾ |
| *Sapulpa Refining. | ... | .. | .. | .. | .. | 9⅝ | 9⅞ |
| *Mid-West Refin. | ... | .. | .. | .. | .. | 96 | 97 |
| *Sinclair O. & R. | ... | .. | .. | .. | .. | 56⅞ | 57 |
| Bonds | ... | .. | .. | .. | 100 | 100½ | 101½ |

*Sales not given, only daily quotations.

# AROUND THE BELT

**New Wells, New Pipe Lines, New Contracts, Additions and Extensions. A Field of Valuable News Gathered for the Journal Through Many Sources.**

## TRADE PERSONALS

It will be noted that the names appearing under the personal headings are exclusively those of men interested in the development of the natural gas field. Those wishing to learn of matters pertaining to men interested in the field of artificial gas should refer to THE GAS INDUSTRY magazine, published at 65 Pearl Street, Buffalo, N. Y., which devotes its columns exclusively to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL each magazine being most favorably known for its respective field. In this way each magazine reaches only those following in the industry it covers. **Publisher's Note.**

**FOR SALE** 45 H. P. 4-cycle automatic Gas Engine. First-class condition. Address G. G. G. Metal Stamping Co., Warren, Pa.

[illegible] Louis S., recently resigned from the office of treasurer of Cowden & Company, and of the Cowden Oil & Gas Company, Tulsa, Okla.

[illegible] L. S., at the annual meeting of the Cowden Oil & Gas Company, Tulsa, Okla., was elected President of the concern.

[illegible] C. A., representative for the Sinclair Oil & Gas Company, Wichita, Kan., is now at the head of the company's land department, and will be located at Tulsa, Okla.

[illegible] H. G., is President of the new Pluto Oil & Gas Company, of Winchester, Ky.

Mr. [illegible] Gordon B., formerly Superintendent for the Sinclair Oil & Gas Company in the Eldorado, Kan., field, is now in the drilling contracting business with [illegible] associates.

Myron [illegible] of New York City, recently has been a director of the board of the Cowden Oil & Gas Company.

[illegible] James L. has been elected President of the Alma Gas & Power Company, Alma, Ark.

[illegible] L. S., of Baltimore, Md., is now Treasurer of the Cowden Oil & Gas Company.

[illegible] C. H., is Vice President of the newly organized Alma Gas & Power Company, Alma, Ark.

[illegible] James G., has been elected Vice President of the Pluto Oil & Gas Company, recently organized at Winchester, Ky.

[illegible] H. C., of Tulsa, Okla., has been made treasurer of the Cowden Company.

## DECEASED

[illegible] Benjamin L., oil and gas magnate, died February 27th at Pittsburgh, Pa. Interment took place at Titusville. He is survived by two daughters.

[illegible] Charles V., Superintendent of the Keystone Gas Company, Olean, N. Y., died March 2nd at his home in that city, at the age of [illegible] eight years. Mr. Turner had been connected with the Keystone Company for a period of forty years.

## PER CUBIC FOOT—RATES

It will be noted that the gas rates referred to below are those referring specifically to natural gas rates. Those desiring to learn of artificial gas rates should refer to THE GAS INDUSTRY, published at 65 Pearl Street, Buffalo, N. Y., which devotes its columns exclusively to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being most favorably known for its respective field, and each rendering equally efficient service in the industry it covers. **Publisher's Note.**

**NEW YORK—Bergen**

The Churchville Oil & Natural Gas Company has notified its Bergen customers that a service charge of 50 cents a month would be made against each consumer unless his net bill for gas consumed during the month should equal or exceed 50 cents, the monthly service charge to cover all gas furnished during the period for which such charge was made.

**OKLAHOMA—Nowata**

Permission has been granted to the Nowata County Gas Company to increase its rates. The new rates are: First 20,000 cubic feet of gas, 25 cents per thousand; next 80,000 cubic feet, 15 cents per thousand; in excess of 100,000 cubic feet, 10 cents per thousand.

**PENNSYLVANIA—Coudersport**

The Potter Gas Company has adopted a sliding scale for its product in this town. Consumers are metered in Class A. Their rates are: Class A. They are divided into three classes, Class A, Class B and Class C. In Class A are the following rates will be charged: For first thousand feet, 50 cents per thousand feet; all gas over one thousand feet and not exceeding two thousand feet, 40 cents per thousand feet; all gas over two thousand feet and not exceeding three thousand feet, 30 cents per thousand feet; all gas over three thousand feet and not exceeding four thousand feet, 20 cents per thousand feet; all gas over four thousand feet and not exceeding five thousand feet, 15 cents per thousand feet; all over that amount, 10 cents per thousand.

In Class B are the following rates: [illegible] Oswayo, Genesee, Harbur, Andrews, Sweetwater, West

Bingham, Austin, Keating Summit, Costello and Ulysses. The prices fixed for these towns all net, are as follows: For first thousand feet, 45c. For second thousand feet, 40c. For third thousand feet, 36c. For fourth thousand feet and all over that amount, 33c.

Constituting class C are the following towns: Westfield, Knoxville, Harrison Valley, Potter Brook, Sabinsville, Cowanesque, Elmer, Mills, Elkland, Lawrenceville, Osceola, Nelson, Academy Corners, and Gaines. The prices fixed for these places, all net, are as follows: For the first thousand feet, 45c. For the second thousand feet, 40c. For the third thousand feet, and over that amount, 36c.

**WEST VIRGINIA—Bridgeport**

The Bridgeport Natural Gas & Oil Company is asking permission to increase the gas rates from the present rate of 14 cents per 1,000 cubic feet with two cents discount if paid before the 10th of the month to 15 cents with one cent discount. The company also asks to change the rate of large consumers from five cents to nine cents with one cent per 1,000 feet discount.

**Gassaway**

The Gassaway Gas Company has filed an application with the Public Service Commission for permission to increase its gas rates. The proposed change is from a net rate of 20 cents per thousand cubic feet to a net rate of 35 cents.

**Sutton**

The Light Fuel & Power Company which furnishes this city as well as Flatwoods and Burnsville with gas, has filed an application with the Public Service Commission to increase its rate from 25 cents net per thousand feet to 35 cents net.

**Wheeling**

Refunds in the gas rate matter of the Manufacturers' Light & Heat Company were recently made to consumers.

## NEW FRANCHISES

It will be noted that the franchises referred to below are those specifically granted natural gas companies. Those desiring to learn of artificial gas franchises granted should refer to THE GAS INDUSTRY magazine, published at 60 Pearl Street, Buffalo, N. Y., which devotes its columns entirely to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being exclusively issued for its respective field, and each rendering 100% efficiency in the industry it covers.—**Publisher's Note.**

**ARKANSAS—Mulberry**

A twenty-five year contract has been secured by the Citizens Service Company to distribute gas in this city.

**CALIFORNIA—McKittrick**

The Producers Gas & Fuel Company, recently incorporated with a capital stock of $500,000, has applied for a franchise in this city, and also for a franchise in Kern County.

**INDIANA—Vincennes**

The Central States Gas Company has made application for a new franchise fixing the rate for mixed natural and artificial gas at 85 cents for the first thousand feet. It is the contention of the city that the Company, recently reorganized, which took over the old artificial gas works in this city and the natural gas holdings, had no legal power to charge any price for a mixture of both gases while it was operating under separate franchises. Upon taking the matter before the Public Service Commission, an opinion was secured from that body to the effect that it had no jurisdiction in the controversy, and that it is wholly up to the city to regulate the matter.

**TEXAS—Mineral Wells**

Owens, Wilson & Palmer have been granted a franchise to distribute natural gas in this city for industrial purposes. The company recently added another large gas well to its resources.

## INCORPORATED

It will be noted that we here specifically point to natural gas companies that have been incorporated. Those desiring to learn of artificial gas companies that have received incorporation papers should refer to THE GAS INDUSTRY magazine, published at 60 Pearl Street, Buffalo, N. Y., which devotes its columns entirely to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being specifically issued for its respective field, thus each rendering 100% efficiency in the industry it covers.—**Publisher's Note.**

**ARKANSAS—Alma**

The Alma Gas & Power Company has been incorporated here with a capital stock of $25,000. Among those interested in the venture are James L. Powell, president; C. H. Wasson, Vice-President, and Fred S. Dibble, Secretary-Treasurer.

**Fort Smith**

The Universal Oil & Gas Company has been organized here with a capital stock of $50,000.

**KENTUCKY—Winchester**

The Pluto Oil & Gas Company has been incorporated here with a capital of $50,000. The officers of the new concern are: H. G. Garrett, President; John G. White, Vice-President, and J. H. Hardwick, Secretary and Treasurer.

**LOUISIANA—Shreveport**

The Louisiana Gas & Fuel Company is a new concern in the field. It is capitalized at $2,000,000, and will take over the natural gas properties of the Atlas Oil Company. The latter company has leases on 21,000 acres in gas territory. Among those interested are Honore Palmer, A. O. Wright, Potter Palmer, Jr., Francis T. Homer, George Bullock, and E. G. Connette.

# GENERAL

It will be noted that the items appearing under this heading pertain more directly to natural gas matters, development in natural gas fields etc. Those desiring to obtain a knowledge of the recent developments along artificial gas lines, are referred to THE GAS INDUSTRY magazine published at 65 Pearl Street, Buffalo, N. Y., which devotes its columns exclusively to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being specifically named for its respective field, and each therefore reaching only those interested in the industry it covers. Publisher's Note

**ILLINOIS—Carlinville**

A well reported to be good for 2,500,000 cubic feet per day has been brought in near this place, on the Spanish Needle Creek dome which was pointed out in 1908 by the Illinois State Geological Survey in cooperation with the U. S. Geological Survey. The new well is almost twelve miles north of the Staunton gas field.

**KANSAS**

The Pratt County Oil & Gas Development Company is reported to have leased 50,000 acres in Pratt, Kiowa, Edwards, Stafford and Pawnee counties for oil and gas development.

**Cowley County**

A 3,000,000-foot well has been completed by the Baden interests on the Thrush farm, section 15, 32, 4, at a depth of 1,180 feet.

**Augusta**

The Carter Oil & Gas Company reports the mudding off of a 3,000,000-foot flow of gas from well No. 3 of the Porter place, section 6, 26, 5, and are drilling it deeper in hopes of finding oil. The gas was found at 1,180 feet.

**KENTUCKY**

The Consolidated Oil & Gasoline Company, a new \$2,000,000 concern organized by New York interests, has leased large acreage in Estill, Clay, Lee, Wheeler and Wolfe counties.

**Langston**

A good gasser has been drilled in the Big Lime sand at 1,800 feet on the Biddle farm.

**Morgan County**

The Pluto Oil & Gas Company, a concern recently organized with a capital of \$50,000, has leased [illegible] acres of land in this and other counties.

**NEW YORK—Canisteo**

The Empire State Gas & Petroleum Company recently brought in two good gas wells in this neighborhood.

**Madison County**

It is reported that test work of drilling test wells for natural gas and oil in Madison and Onondaga counties will be started shortly by Ohio interests. Agents have been obtaining leases throughout the territory bounded by Oneida Lake, the southern boundary of Madison county and along the Salt Springs road in the town of Manlius.

Probably four wells will be drilled at first in widely separated places. It is understood that about \$50,000 will be expended in the testing of this territory.

**Portville**

The Haskell Oil Company has leased a large block of land on Haskell Creek and has contracted for the drilling of a test well on the Walrath farm.

**Tonawanda**

A light gas well that shows increasing pressure, however, has been drilled on the property of the Wickwire Steel Company on the River road near Tonawanda. The gas has been piped to the laboratories and the hospital, and is soon to supply certain parts of the big cooking plant of the Semet Solvay Company near the Wickwire plant. The gas was struck at a depth of 650 feet. Another well has been started, and it is the plan of the steel company to keep on drilling.

**OHIO—Canfield**

A strong gas well was drilled in recently by the Canfield Gas & Electric Company on the Lewis Manchester farm, southwest of the village.

**Fairfield County**

In Walnut Township the Ohio Fuel Supply Company's test on the center of the Eliza Smith farm, Section 4, is a good gas well.

The Logan Gas & Fuel Company has made a location on the P. H. Daubenmire farm, Section 3.

**Jefferson County**

In Cross Creek township Peters & Company have drilled their No. 2 on the Joanna Need farm deeper and obtained a light gasser in the Big Injun.

**Mansfield**

A [illegible] gas well is being built here and another one at Burbank by the Medina Gas & Fuel Company. They will be used to serve these cities.

**Monroe County**

In the Woodsfield district, Center Township, Middle Ridge & Company's test on the James Hesse farm is a fair gasser in the Big Lime formation.

**Powell County**

The [illegible] Company's test on the Nobles farm, west of the J. R. Hammond farm, is a light gas well.

**Richland**

A [illegible] gasser has been struck here. It [illegible]

**Toledo**

The Ohio Fuel Supply Company has taken before the Supreme Court the matter of [illegible] the Public Utilities Commission has the right to increase the gas supply to consumers by the raising of meters who use more than a certain number of feet per week. The order was put into effect during the recent cold weather and caused great loss to many manufacturers.

**Urbana**

Leases on a large tract of land have been taken here by Pittsburgh interests. It is learned by geological tests that the prospects for oil and gas in this territory are excellent.

**Woodsfield**

The well on the J. G. Rouse lot inside the city limits has developed into a 3,000,000 cubic feet gasser from the lime sand and further drilling has been abandoned. The Central Gas Company has purchased the well and will use it to reinforce their supply of gas for the city.

**OKLAHOMA—Bartlesville**

No. 15 test of the Cora Exploitation Company on fee land in the southeast of the northwest of 36-27-13 is reported to be making 3,000,000 cubic feet.

A. M. and Preston Straight's No. 1 on the Katie Hartness farm in the southeast of the southwest of 15-26-13 is reported good for 2,500,000 feet of gas.

**Beggs**

The Savoy Oil Company has a 30,000,000-foot gasser in section 22-14-11.

**Bradley**

The Santa Fe Railroad Company test in 2-2n-5w is reported making 1,000,000 cubic feet at 1,213 feet, and 11 feet in the sand.

The Gypsy Oil Company, it is reported, has a 9,000,000,000-foot gasser in its No. 9 well on the Beams farm in the northeast of the southwest of 18-17-12.

**Healdton**

The Magnolia Petroleum Company is building a plant for the extraction of gasoline from casinghead gas in this city. The capacity of the plant will be something like 600,000 cubic feet of gas per day.

**Jennings**

The Prairie Oil & Gas Company has 5,000,000 cubic feet in its No. 2 on the Billy Mann farm, in the southwest of 23-20-7.

**Kay County**

The Kent Oil Company found a large flow of gas at a depth of 2,620 feet, 30 feet in the sand, in their No. 3 on the Harvel farm in section 6-28-1. The gas will be mudded in, and drilling continued.

The Kay & Kiowa Oil & Gas Company has a 15,000,000-foot gasser in its test on the Curry farm, section 18-28-1, east, at a depth of 3,320 feet.

No. 1 well of the Bermont Oil Company, on the Smith farm, Section 21-29-1 is reported to be good for 40,000,000 feet in the 3,300 sand. The gas will be mudded in.

**McIntosh County**

South of Henrietta, the Kusa Smelter Company has a 20,000,000-foot gasser in No. 1, Section 9-11-14, from 1,415 to 1,430 feet.

**Muskogee**

Further information regarding the oil and gas leases recently filed, as given below, may be obtained from THE NATURAL GAS JOURNAL, Buffalo, N. Y.

36295—Dated 2-20-17. To H. C. Burns, Tulsa, Okla.; 30 acres; Wagoner Co.

36296—Dated 2-19-17. To Gladys-Belle Oil Co., Tulsa, Okla.; 160 acres; Latimer Co.

36297—Dated 2-9-17. Mary Coley, nee Jefferson, Choctaw, Roll No. 8775, Red Oak, Okla., to same; Latimer Co.

36298—Dated 2-14-17. To Gilbert Wood and J. W. Long, Okemah, Okla.; 73.87 acres; Creek Co.

36299—Dated 2-23-17. To La Buena Oil Co., Ardmore, Okla.; 210 acres; Carter Co.

36300—Dated 3-1-17. To C. O. Pfenninghausen, Tulsa, Okla.; 120 acres; Okmulgee Co.

36301—Dated 3-8-17. To John N. Day, Tulsa, Okla.; 40 acres; Okmulgee Co.

36302—Dated 2-24-17. To M. E. Shufflin, Coffeyville, Kan.; 30 acres; Nowata Co.

36303—Dated 2-24-17. John Dry, Cherokee, Roll No. 27868, Strang, Okla., to M. B. Shufflin, Coffeyville, Kan.; 30 acres; Nowata Co.

**New Healdton**

According to report, the Lone Star Gas Company in the Loco field has a well in 16-3s-5w which made 4,000,000 feet of gas at 480 feet, 12,000,000 at 810 feet and 12,000,000 at 860 feet. The gas has been bradenheaded and is being conserved.

It is said that the company will build a line from Petrolia, Texas, to the Loco field and a market will be provided for the gas development there.

**Okmulgee County**

The United Producers Oil Company, et al, have drilled in a good gasser on the Shacht farm at a depth of 1,600 in the southwest of Section 21-14-14. The well is located near Morris.

The Kingwood Oil Company has a 10,000,000-foot well in its No. 3 at 1,745 feet, in Section 6-12-14.

**Osage**

The Indian Territory Illuminating Oil Company No. 2 in the northeast of the southeast of 22-27-10 is reported good for 1,500,000 feet of gas.

The same company's No. 1 in the northwest of the northeast of 27-27-10 is good for 1,200,000 feet of gas.

The Illuminating Oil & Gas Company, No. 5, in the northeast of the northwest of 34-29-10 is making 25,000,000 feet of gas and No. 4 is making 2,500,000 feet.

**Tulsa**

At the annual meeting of the Cosden Oil & Gas Company, officers for the ensuing year were elected as follows: J. S. Cosden, President; Jacob France and A. W. Geiske, both of Baltimore, and E. R. Perry, of Tulsa, Vice-Presidents; E. M. Rouzer, Baltimore, Secretary and Treasurer; D. C. Bothwell and D. W. Moffitt, Tulsa, Assistant Secretaries, and B. W. Grant, Tulsa, Assistant Treasurer. The Directors are J. S. Cosden, A. W. Keiske, Jacob France, E. R. Perry, R. Lancaster Williams, E. L. Norton, A. G. Lawrence, Stewart Oliver and Eugene Meyer, Jr.

**PENNSYLVANIA—Clearfield County**

The United Natural Gas Company has recently completed a good gasser in this county. The well is located on the Corbet tract, about two miles from DuBois. The gas was found at a depth of 1,792 feet, in the third sand. There is a probability that the well will be drilled down to the Kane sand, below the third, in order to make a complete test of the least.

Pittsburgh

Bradford

TEXAS Brazoria County

Houston

Mexia

Mineral Wells

Parker County

UTAH—American Forks

WASHINGTON Spokane

WEST VIRGINIA

Parkersburg

Clay County

Doddridge County

Harrison County

Kanawha

Lewis

Marion County

In Dent's Run pool, Mannington District, the Delmar Oil Company drilled No. 29 on the John L. Hays farm into the Gordon sand and has a fair gasser. On Flat Run, the Carnegie Natural Gas Company's test on the Varner heirs' farm is a gasser in the fifth sand.

On Flat Run, Mannington District, the Carnegie Natural Gas Company's test on the A. W. Toothman farm is a gasser in the fifth sand.

**Marshall County**

On Big Run, Liberty District, the Carnegie Natural Gas Company drilled its test on the W. C. Fish farm into the Gordon sand. It is a gasser. In Meade District, located on Grave Creek, Charles Riley & Company have started to drill a test on the John Campbell farm and have made a location on the A. Ingraham farm.

**Monongalia County**

On Pedlars Run, Clay District, the Pittsburg & West Virginia Gas Company drilled a second test on the Alpheus Henderson farm through the Big Injun sand and developed a fair gasser in that formation.

On Scott's Run, Battelle District, the Monongalia Valley Traction Company drilled No. 3 on the W. J. Lemasters farm into the Big Injun sand. It is a fair gasser in the Big Injun sand. The gas companies are increasing operations in Monongalia County.

**Roane County**

On Frozen Camp Run, Curtis District, the United Fuel Gas Company drilled its test on the Irvine Ingram farm into the salt sand. It is a fair gasser in that formation and will not be drilled deeper at this time.

On the west fork of Green Creek, Harper District, the Sidney Oil & Gas Company's test on the J. M. Hively farm is a gasser in the Big Injun sand.

**Taylor County**

On Berry's Run, Flemington District, the Hope Natural Gas Company completed a test on the G. C. Brohard farm. It is a gasser in the Big Injun and Gantz sands.

**Wetzel County**

On Long Drain Run, Church District, the same company has completed a gasser on the Grant Thomas farm and is rigging up at a test on the J. V. Donley farm.

The Manufacturers' Light & Heat Company drilled a second test on the J. D. Teagardner farm, located on Long Drain Run, Church District, through the Gordon sand and developed a gasser.

**WYOMING—Casper**

The Midwest Oil Company is to erect a $150,000 gasoline plant at its wells. A pipe line will be constructed, and the gasoline pumped to a point near the city.

The Ohio Oil Company, it is reported, recently brought in a gasser in the Powder River dome that is estimated to be producing 40,000,000 cubic feet.

**ALBERTA—Calgary**

Extensive development work is planned in the Viking field, following the strike of a 6,000,000-foot well. According to report, a company intends to seek 20 producing wells with the ultimate intention of supplying Edmonton and other northern cities and towns with natural gas for domestic and power purposes.

**ONTARIO—Crystal Beach**

The Provincial Natural Gas & Fuel Company of Ontario, Ltd., has announced that rates to summer colonists will be increased this year, but that the year-round users will be kept on at the old rate—55 cents per thousand. The new rate will be 65 cents per thousand for the first five thousand, and 45 cents per thousand for all over that.

## NEW ARKANSAS GAS BILL.

A NEW gas bill, the title of which is "A Bill for an Act to Conserve the Natural Gas Resources of the State of Arkansas, and to Appoint an Inspector, and for Other Purposes," is now before the Arkansas Legislature.

The following provisions are embodied in the bill:

Section 1 provides for casing off all fresh or salt water encountered in drilling each well from the oil or gas-producing sand. In case oil or gas is found in one stratum of sand and the well sunk to a lower stratum, such first oil or gas shall be conserved by casing or mudding in.

Section 2 requires the shutting in and confining of oil or gas in a new well within 10 days following its discovery until it may be utilized.

Section 3 provides for plugging all dry holes under the supervision of the inspector. Cement and sand concrete shall be filled in to a point not less than 20 feet above the top of the gas or oil-bearing sand. This shall be capped with a wooden plug not less than two feet long and fitting the hole. Each succeeding sand stratum shall be treated in like manner.

Section 4 provides that any person injured by failure to comply may enter upon the premises and plug the well as provided, and shall have a lien on the leasehold for such expense. The fine for failure to comply with the provisions is fixed between $100 and $1,000.

Section 6 provides for the keeping of an accurate log of all wells during drilling operations.

Section 7 provides that it shall be the duty of any person discovering any leak in a pipe line to forthwith notify the owner, who shall immediately repair the same. This notification duty is also laid upon the inspector with penalty for failure of $100 to $1,000.

Section 8 provides a penalty for permitting natural gas to escape after three days following its being struck. Provision is made for cases in which the flow is uncontrollable within that time.

Section 9 permits owners of lands adjoining to stop such waste if owners fail to do so, with lien upon the leasehold.

Section 10 provides penalty for setting fire to escaping gas from well or pipe lines. Flambeau torches are forbidden as wasteful of gas.

### MORE LIVES WILL BE SAVED

[illegible] saving devices for the saving of life [illegible] a decided lessening of reports regarding [illegible] asphyxiations etc.

[illegible] More than [illegible] years [illegible] of the gas interests and [illegible] the [illegible] Mr. [illegible] sometime since received the [illegible] [illegible] [illegible] [illegible] the Manager of [illegible] Appreciating [illegible] [illegible] [illegible] [illegible] [illegible]


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[illegible] a heating plant [illegible] hot water or steam, whether [illegible] a straight gas heater or a coal heater [illegible] gas burners.

[illegible] Minneapolis [illegible] operate [illegible] alternating or direct current [illegible] entirely automatic [illegible] [illegible] [illegible] [illegible]

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Signature of editor, publisher, business manager or owner.

Sworn to and subscribed before me this 21st day of March, 1917.

E. L. REED,

Notary Public in and for Erie County.

Form 3526 c5-6012.
(My commission expires March 30th, 1918.)


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Though a state of war exists, cooking must be done, water must be heated, rooms must be warmed, white clothing must be ironed, etc., etc. This being the case, appliances for accomplishing these ends will continue to find their market, and gas will be used as heretofore.

In the field of industrial gas appliances it is likely that new channels will be opened, by virtue of necessity brought about through increased demand for steel used in various forms and specially treated in the manufacture of equipment and munitions made indespensable by the very war that we all so deeply deplore.

Such are the conditions surrounding our gas field in the United States.

Lucius L. Bigelow

# FROM THE EDITORIAL MAIL BAG

## GAS REGARDLESS OF RATES

In his testimony in the United States Court Mr. Henry L. Doherty of the Kansas Natural Gas Company made a striking comment on the proposition advanced by the Kansas Commission that he try the 25 cent rate a year or two to see if it was remunerative.

He pointed out that a public service corporation must be prosperous in order to be able to give service. It must give service and then expect to get the support of the people. A hungry man who asks for food to eat next fall after the harvest is in and who has given him something to eat must be a contemptible cuss. One of the curiosities of the time is that we do not undertake to furnish natural gas to cities in Kansas and Missouri should not be permitted to say anything to say about what they may charge for gas, particularly after three United States courts after exhaustive testimony have declared that 35 cents is confiscatory. We fail to see why the natural gas people have any less right to make money out of their enterprise than bankers or merchants or manufacturers.

And by the way, if the Kansas Utilities Commission will study the whole subject and tell the Kansas Natural Gas Company to charge all it wants to, it may bring this. If the gas companies charged all they could bill the consumers for the other day, the higher the rate the more it costs the gas company to furnish domestic consumers with gas. In other words, there is a point where it pays the people than to get natural gas in [illegible]

[illegible] people. A [illegible]

## COMING SEASON'S WORK

### A Get Together That Brought Results and Made Both Giver and Recipient Glad

[illegible]

[illegible] Manager [illegible]

[illegible]

[illegible]

[

## OHIO'S FUEL SAVINGS.

**A Comparative Statement by Samuel Wyer, Considering as Fuel, Coal Gas, Coke Oven Gas, Water Gas, Electricity, Fuel Oil, Gasoline, Alcohol, and Acetylene.**

BY SAMUEL S. WYER.

THE following interesting statement covers a feature of natural gas service in the State of Ohio, as compared with service by substitutes for gas.

The domestic natural gas consumption of the State of Ohio for the year 1915 was 77,087,000 "M." This was sold to the domestic consumer at an average price of approximately 30c per "M"—that is per 1,000 cu. ft.

The cost of substitutes for natural gas is shown on the table. The three manufactured gases, that is, coal gas, coke oven gas, and water gas, that could be used as substitutes for natural gas are figured at the approximate price of these gases in other cities in the United States.

The B. t. u. per unit means the number of heat units in the fuel, B. t. u. being an abbreviation for heat unit, which is simply a yard stick for measuring the quantity of heat in the fuel. The 1100 B. t. u. for natural gas is a fair average for the entire state, considering the somewhat lower values of Ohio gas and the higher values of the imported West Virginia gas.

COST OF SUBSTITUTES FOR THE 77,087,000 "M" CU. FT. NATURAL GAS USED ANNUALLY BY DOMESTIC NATURAL GAS CONSUMERS IN OHIO.

| | NAME | B. t. u. per unit 1,100 per cu. ft. | Annual quantity to equal 77,087,000 "M" cu. ft. Natural Gas. |
|---|---|---|---|
| | Natural Gas | 550 " " " | 77,087,000 "M" cu.ft. |
| Substitutes | Coal Gas | 550 " " " | 154,174,000 " " " |
| | Coke Oven Gas | 550 " " " | 154,174,000 " " " |
| | Water Gas | 3,412 " k. w. | 154,174,000 " " " |
| | Electricity | 118,000 " " | 12,420,000,000 k. w. |
| | Fuel Oi | 124,000 " gal. | 683,000,000 gal. |
| | Gasoline | 73,000 " " | 718,000,000 " |
| | Alcohol | 1,400 per cu. ft. | 1,161,000,000 " |
| | Acetylene | 154,174,000 " " " | 15,142,000,000 " |

| | NAME | Price to Consumer per unit | Annual Total Cost to Consumer | Annual Quantity Raw Fuel required to make equivalent of 77,087,000 "M" cu. ft. Natural Gas |
|---|---|---|---|---|
| | Natural Gas | 40c "M" | $ 30,834,000 | |
| | Coal Gas | 1.00 " | 154,174,000 | 15,730,000 tons coal |
| | Coke Oven Gas | 1.00 " | 154,174,000 | 33,516,000 " " |
| | | | | 3,083,000 " coke |
| | Water Gas | 1.00 " | 154,174,000 | 770,860,000 gal. oil |
| Substitutes | Electricity | 3c k. w. hr. | 372,600,000 | 18,630,000 tons coal |
| | Fuel Oil | 5c gal. | 34,150,000 | 683,000,000 gal. |
| | Gasoline | 20c " | 143,600,000 | 718,000,000 " |
| | Alcohol | 40c " | 464,400,000 | 1,161,000,000 " |
| | Acetylene | 4c lb. | 605,680,000 | 7,571,000 tons carbide |

If any of the manufactured gases were to be substituted for natural gas, in accordance with the modern progress of the art which would eliminate candle power requirement, the heating value standard would be approximately 550 B. t. u. It is important to note that the heating value of alcohol per gallon is much less than that of gasoline.

In making the comparison for electricity, the efficiency of the natural gas using apparatus was estimated to be 50% and of the electric heating appliance 100%.

The magnitude of the Natural Gas Industry in Ohio is shown below. There is no regeneration and the gas companies must be continually prospecting for new supplies. At the present time the gas companies hold 5 acres of gas land for each domestic natural gas consumer.

The unique position of the State of Ohio in the Natural Gas Industry is shown by the following:

36% of all the domestic natural gas consumers in the United States live in Ohio.

36% of all the domestic natural gas used in the United States is consumed in Ohio.

14% of all the natural gas land acreage in the United States is located in Ohio.

16% of all the natural gas wells in the United States are located in Ohio.

These latter two features make evident the necessity of importing gas into Ohio to meet the consumers' demands.

The magnitude of the Natural Gas Industry in Ohio is evident from the following:

773,548 domestic natural gas consumers live in Ohio.

73% of Ohio's population are dependent on natural gas for their cooking, heating or lighting service; this is estimated on the basis that each domestic consumer represents five people, and that the population of the state in 1916 was 5,252,000.

508 towns in Ohio have natural gas service; only 6 cities (that is, towns of more than 6,000 population) are without natural gas service.

69 out of 88 (78%) of the county seats of Ohio have natural gas service.

46% of the gas used in Ohio must be imported from other states, principally West Virginia.

## ILLINOIS GEOLOGICAL SURVEY.

IT is feared that the State Geological Survey of Illinois will lose not only the prestige that it has enjoyed by being an individual feature of the state government, standing alone and by itself, but it is also feared that through lack of funds it will lose its ability to ably serve those of the United States and State of Illinois who have found the Survey's help almost indispensable.

The Survey, it is planned, shall be combined with other departments of the state, thereby putting many departmental matters into the hands of one single, organized department, rather than that the Survey shall remain a separate unit.

The Geological Survey of Illinois has been most helpful to many interests, individual and collective, and it is hoped that the appropriation will not be cut down, or the work of the Survey curtailed.

# To Buffalo via Lake Erie

***The Most Delightful Way, and the Logical Way Will be the Lake-Way from Cleveland to Buffalo — It Means a Night on a Big Steamer — It Brings a Large Number to Buffalo Simultaneously.***

THE plan as set forth in the March issue of the NATIONAL ASSOCIATION BULLETIN contemplates those from the western and southwestern sections of the country coming to Buffalo by steamer on Lake Erie via Cleveland, arriving in Cleveland in the various directions during the day of May 19th and leaving Cleveland on the Cleveland and Buffalo steamer leaving the evening of May 19th thus the party collects in Cleveland arriving in Buffalo on the morning of the 20th

in the evening. Therefore, those arriving at Cleveland late in the afternoon or in the evening of May 19th will be in ample season for the boat. Late comers would go direct to the steamer.

For convenience sake those who can do so should communicate with the passenger department of the [illegible] Transit Company, Cleveland, Ohio, as soon as possible so as to prove to leaving home thus to advise the steamship company of the number to be provided for

[illegible]

[illegible]

#### LAFAYETTE HOTEL.

Rooms without bath, $1.50 and $2.00 for one person, and $2.50 and $3.00 for two persons.

Rooms with bath, $2.50, $3.00 and $3.50 for one person and $4.00, $5.00 and $6.00 for two persons.

#### HOTEL STATLER.

Room with shower bath only, for one person, $1.50 and $2.00 per day; for two persons, $3.00 per day—with twin beds, $4.00 per day.

Room with tub and shower bath, for one person, $2.50 to $5.00 per day; for two persons, $4.00 to $6.00 per day —with twin beds, $5.00 to $7.00 per day.

Two connecting rooms, for two persons, $5.00 to $10.00; for four persons, $8.00 to $12.00 per day.

Suites of parlor, bedroom and bath (tub and shower), $8.00 to $15.00. Private dining room and additional bedroom (connecting) may be secured, if desired.

Sample rooms, with tub and shower, for one person, $3.00 and $4.00; for two persons, $4.50 to $6.00.

#### IROQUOIS HOTEL.

One person: Room with tub bath, $3.00 to $5.00; room with shower bath, $2.50 to $3.00; room without bath, $2.00 to $3.00.

Two persons: Room with tub bath, $5.00 to $7.00; room with shower bath, $4.00 to $5.00; room without bath, $3.00 to $4.00.

Two connecting rooms with bath, two persons, $6.00 to $8.00; four persons, $10.00 to $12.00.

Suites: Parlor, bedroom and bath, one person, $8.00 to $10.00; two persons, $10.00 to $12.00.

As the general excursion season has not started by the 13th of May, the following has been stated by H. R. Rogers, Traffic Manager of the Cleveland & Buffalo Transit steamer line: "Without doubt the Natural Gas Association of America will practically occupy the steamer, as though chartered for its sole accommodation." This will make the evening on the boat an enjoyable one, and all who can so arrange should look forward to making plans to arrive at Cleveland on the 13th, leaving Cleveland by Cleveland & Buffalo steamer that night. Baggage can be checked through to Buffalo all the way by rail if all rail ticket is purchased, while the passenger himself may change to the boat at Cleveland. Or, if ticket is purchased *by rail* only to Cleveland, baggage should then be transferred direct to Cleveland & Buffalo steamer at Cleveland.

Those supply-men and gas-men living within running distance of Cleveland, will find fine roads from the Pittsburgh territory, from the Ohio region, etc., and if they come by motor car to Cleveland, their cars up to and including 127-inch wheel base will be carried by steamer Cleveland to Buffalo one way $5.00, round trip, $9.00. Rate for cars over 127 inches wheel $9.00 one way, $15.00 two ways. Good returning any time during the season.

The roads between Cleveland and Buffalo are not good, and the expense would be as great to run a car by road between these two cities as to bring it by steamer.

The roads about Buffalo are superb. The road to Niagara Falls is paved all the way with brick. The roads about Niagara Falls most excellent. Bring your motor cars.

For further information regarding matters pertaining to boat trip, Cleveland to Buffalo, write to the NATURAL GAS AND GASOLINE JOURNAL, Buffalo, N. Y., while all hotel reservations should be made without loss of time, as we have said, *direct with the management of the hotel.* There is no official hotel headquarters.

#### CONVENTION AND EXHIBITION.

The Convention papers now being prepared for the Buffalo meeting, will not have been surpassed by any presented at previous conventions, while the exhibition will this year be held in the biggest show-room that the Association has occupied in connection with its exhibit. Everything is in fine shape for a great meeting, and many trips of Secreteary Adams and President Holbrook of the Supply Men's Association, to Buffalo during the period of arranging for the Convention, guarantee an especially enjoyable and profitable occasion.

#### LIST OF EXHIBITORS.

Among those concerns that have engaged exhibition spaces up to date, many of which will each occupy a number of booths, are the following, to each we would suggest that with the embargo on freights that has in various sections of the country greatly interfered with freight shipments, no time should be lost in sending equipment to Buffalo for the great gas-show that will open at 9 o'clock A. M., May 14th, complete and ready for inspection by the gas-men who it is expected will arrive by steamer via Cleveland as per another notice in this issue, on the morning of May 14th.

Those shipping exhibits to Buffalo for the Natural Gas Exhibition would do well, if possible, to route them by way of Cleveland, and the Cleveland & Buffalo steamers, thus, freight leaving Cleveland at night is sure to be unloaded in Buffalo the next morning.

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1. Continental Supply Co., St. Louis.
2. Continental Supply Co., St. Louis.
3. Draeger Oxygen Apparatus Co., Pittsburgh, Pa.
4. Utica Valve & Fixture Co., Utica, N. Y.
5. 
6. National Transit Pump & Machine Co., Oil City, Pa.
7. Jones & Laughlin Steel Co., Pittsburgh, Pa.
8. 
9. Continental Supply Co., St. Louis.
10. Continental Supply Co., St. Louis.
11. Dayton Pipe Coupling Co., Dayton, Ohio.
10. Continental Supply Co., St. Louis, Mo.
12. Metric Metal Works, Erie, Pa.
13. Metric Metal Works Erie, Pa.
14. Ludlow Valve Mfg. Co., Pittsburgh Pa.,
15. Colona Mfg. Co., Pittsburgh, Pa.
16. Minneapolis Heat Regulator Co., Minneapolis, Minn.
17. Iroquois Natural Gas Co., Buffalo, N. Y.
18. C. & G. Cooper Co., Mt. Vernon, Ohio.
19. Oil Well Supply Co., Pittsburgh, Pa.
20. Oil Well Supply Co., Pittsburgh, Pa.
21. Oil Well Supply Co., Pittsburgh, Pa.
22. Oil Well Supply Co., Pittsburgh, Pa.
23. Oil Well Supply Co., Pittsburgh, Pa.
24. Oil Well Supply Co., Pittsburgh, Pa.
25. Gas Appliance Co., Cleveland, Ohio.
26. Gas Appliance Co., Cleveland, Ohio.
27. Oil Well Supply Co., Pittsburgh, Pa.
28. Oil Well Supply Co., Pittsburgh, Pa.
29. Oil Well Supply Co., Pittsburgh, Pa.
30. Oil Well Supply Co., Pittsburgh, Pa.
31. Oil Well Supply Co., Pittsburgh, Pa.
32. Oil Well Supply Co., Pittsburgh, Pa.
33. Carnegie Steel Co., Pittsburgh, Pa.
34. Carnegie Steel Co., Pittsburgh, Pa.
35. Dresser, S. R., Mfg. Co., Bradford, Pa.
36. Dresser, S. R., Mfg. Co., Bradford, Pa.
37. C. M. Hecter & Sons Co., Inc., Butler, Pa.
38. Republic Iron & Steel Co., Inc., Youngstown, Ohio.

## CHANGES COOKING TO GAS

### Equipment Though Used with Natural Gas, is Duplicate of Equipment Built for Artificial Gas Service

At the Hotel Statler, Buffalo, N. Y., on the night of February 27th former cooking equipment was removed, and when the guests of the hotel were served with their breakfast the next morning all of the gas equipment had been put into active service which had been installed during the night. Whereas the cafe service of the night before had been cooked on hard fuel ranges the morning meal was prepared over the gas flame.

The [illegible] Gas Company is not purposing to enter foreign fields in the matter of hotel cooking installations, as a new [illegible] Mr. Harry B. Hawkins having been the active agent in connection with the big gas cooking installation at Hotel Statler in Detroit. Messrs. J. M. and W. P. Statler favored the gas [illegible] as their advisers in connection with the installation of a like nature at the new big Statler Hotel [illegible] and that Mr. Hawkins [illegible] Buffalo.

The equipment [illegible] Buffalo consists of a seven section Model [illegible] Range with flues [illegible] differences existing in the Hotel Statler [illegible] includes two [illegible] broilers [illegible]

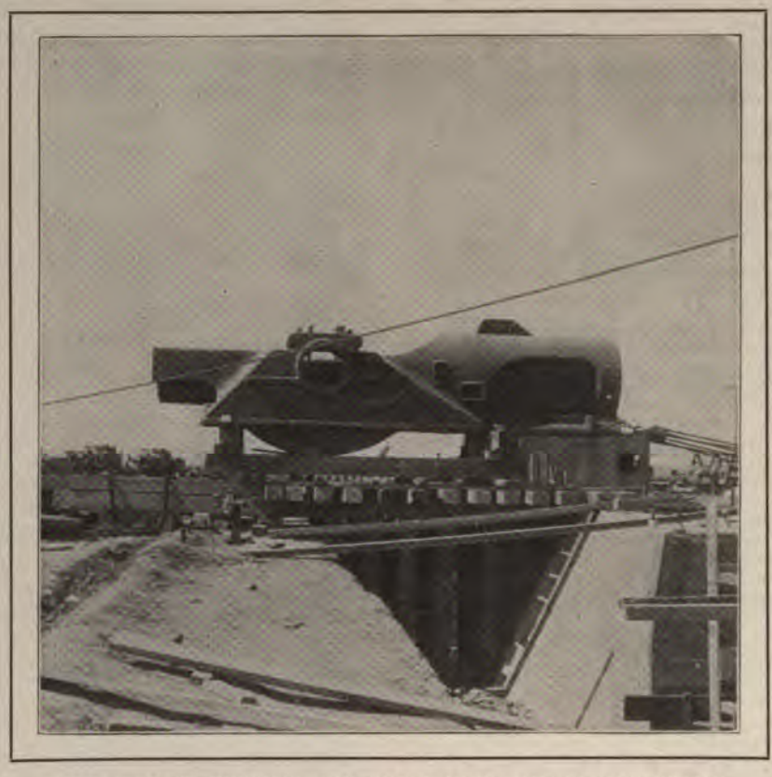
The [illegible] Hotel and [illegible] gas [illegible]

## BIG GAS GUNS.

**How To Meet An Unavoidable Result If Things Go On As At Present.**

THE natural gas enterprise has that which is the equivalent of the big guns used in modern warfare. In the gas game, it's a big gas compressor, shooting the gas from the field to the delivery system of the city, aiming specifically to service at the consumer's meter.

Through the courtesy of our friends at Columbus, who for their local patrons publish a local organ called "The Gas Magazine," we have the privilege of printing a picture of the base of one of the big guns of the gas field. While this certainly looks not unlike a big coast defense gun, it is in fact a peace gun free from producing horrors arising from the firing of great pieces used in modern warfare. Our illustration is the frame of an enormous gas engine used in a booster station.



NOT A COAST DEFENSE GUN BUT A HUGE GAS ENGINE FRAME.

While higher prices charged for natural gas, thus cutting out the use of this valuable element at cheap rates by big factories, would conserve and overcome in part the shortage arising during cold spells in winter, the same advance in retail price of gas, would make possible the building of additional booster stations and the installing of more of these enormous engines and compressors, thus to artificially keep up the pressure in main lines so necessary in order to deliver the gas when temperatures are low. What we need is a general advance in price of natural gas.

In a letter recently received from an excellent authority, Mr. J. H. Maxon, General Manager, Central Indiana Gas Company, at Muncie, Ind., Mr. Maxon says, "I have noted in a copy of the NATURAL GAS AND GASOLINE JOURNAL for February, page 32, an article in regard to 'Natural Gas Shortage,' and feel certain that expressions of this kind, extended considerably throughout the press will be helpful in causing the public to realize the real situation in regard to the future of natural gas supply.

I am strongly of the opinion that the true solution of the problem now before the natural gas interests, is fixing the price for natural gas at the same rates as are now prevailing for artificial gas, but giving the public the benefit of the higher B.t.u., or heat value, for such period as it may be possible to continue the production of natural gas. This will be conservation in its truest sense, and will be of tremendous advantage to the public, if they can but see it. The following is certainly true: No man knows how to manufacture a gas of as high value as that which Mother Nature has provided in natural gas."

The foregoing certainly offers much food for thought, and the public press, instead of criticizing, should the rather give thoughtful consideration to how existing difficulties may be met providing the public is willing to do its part, and stand its share of that which is necessary in order to insure long continued natural gas service with its great heating values.

# Gas Wrinkles

***Wrinkles — The Ever-Helpful Means to Short-Cut Methods.***

THE Wrinkle Department of the Natural Gas Association of America under conduct of W. R. Ellerbrock, Editor Columbus Ohio and Alfred Drescher Assistant Editor Bartlesville, Okla., [illegible] only a splendid means of conveying one's [illegible] to a fellow [illegible] the field but also a means [illegible] that's winning dollars.

A patriotic editor of Wrinkles writes us that [illegible] will be awarded without discrimination [illegible] best men shall win unless perchance among [illegible] be a spy in disguise when as the Editor [illegible] winnings shall be passed on to the next in [illegible] other words this must be a square deal [illegible].

LIST OF PRIZES OFFERED

| | |
|---|---|
| [illegible] | [illegible] |
| [illegible] | [illegible] |
| [illegible] | [illegible] |
| [illegible] | [illegible] |

[illegible] best wrinkles will be granted No. [illegible] prizes will be awarded by judges and the [illegible] crediting at a credit will be denied [illegible] [illegible].

[illegible] the most will want [illegible] [illegible] Best Wrinkles [illegible] [illegible] number. The [illegible] [illegible] the same way. Such [illegible] [illegible] and [illegible] a manner [illegible] [illegible] results.

[illegible] that will appeal [illegible] a number [illegible] [illegible] [illegible]

# After Recovering Gasoline

***Gasoline Extraction Industry Stands for the Highest Conception of Conservation.***

BY GEORGE A. BURRELL,
Consulting Chemical Engineer, Pittsburgh, Pa.
Formerly in charge of Natural Gas Gasoline Investigations, Bureau of Mines.

AN interesting phase of the natural gas gasoline industry has to do with the heating value of natural gas after gasoline has been extracted from it. The matter has assumed importance with the installation of "drying" or absorption plants on trunk gas lines leading to cities. The average natural gas consumer has not learned to differentiate between low pressure on gas mains and deficient heating value, and hence, when in the cold winter months, if his supply of gas decreases, he imagines because of the installation of gasoline plants on the trunk lines that much of the heating value has been removed along with the gasoline.

Some gasoline has been extracted from natural gas for a great many years, but it is only in the past six or seven years that the industry has been a lucrative one, due to the ever increasing demand for the product. In 1916, about 24,000,000,000 cubic feet of casinghead natural gas from oil wells were treated and after extracting the gasoline from it, the major part was turned into gas lines leading to cities. In past years this casinghead gas was wasted, except for utilization on leases for drilling wells or heating and lighting a few scattered houses. The expense of collecting the gas, a small amount from each well, and delivering it to a main line was too great. For instance, the writer knows of one gasoline plant operator who collects gas from 1500 wells; about 1000 feet from each well. Probably $225,000 is invested in pipe lines and plant equipment. Certainly the investment would have been prohibitive if the gas itself were the only object. As it is, he extracts close to 2000 gallons of gasoline from the gas and then realizes a further return by selling his residue gas to a natural gas company, who in turn retail it to various domestic consumers. It is quite likely that for the year 1917, close to 40,000,000,000 cubic feet of natural gas from oil wells will be treated for gasoline. The larger part of this gas will finally be used in cities and towns and will represent gas that, if it were not for gasoline extraction, would never reaceh the consumer. Gasoline plants have done more to eliminate the wasteful flambeau than anything else. Darkness never existed in some of our early oil and gas fields, not as long as a bountiful providence provided a gas or oil well somewhere in the vicinity.

Casing head gas, as it issues from oil wells, is exceedingly rich in heating value, often as high as 2000 to 2500 B.t.u. per cubic foot. This is 4 or 5 times as high as the artificial gas used in cities. It is so high in heating value and rich in hydrocarbons that it does not burn well in the ordinary gas burner or stoves. It often burns incompletely and deposits soot; nor does it behave best in gas engines. Removing the gasoline remedies this condition. The heavier soot forming ingredients are converted into gasoline. Instead of being a nuisance, they reach the consumer in the form of a valuable and much desired fuel.

The writer has made many tests of casing head natural gas before and after it was treated in gasoline plants. The following table comprises some of them. B.t.u. per cubic foot 0° C. and 760° mm. pressure.

| Plant No. | Before extraction of gasoline | After extraction of Gasoline |
|---|---|---|
| 1 | 2544 | 2171 |
| 2 | 2474 | 2022 |
| 3 | 1817 | 1220 |
| 4 | 2310 | 1050 |
| 5 | 2417 | 1576 |
| 6 | 2367 | 1729 |
| 7 | 2070 | 1874 |
| 8 | 2231 | 1931 |
| 9 | 1916 | 1635 |
| 10 | 1784 | 1598 |

The high heating value of this natural gas is apparent. If the artificial coal and water gas as used in cities is worth 80c per thousand cubic feet, (in some cities it sells for much more) this gas is worth $1.50 to $2.50 per cubic foot.

The writer was interested in one case where a city council threatened trouble because a gas company supplied considerable casing head natural gas to them after the gasoline had been extracted. The gas company easily proved that the gas they were supplying was richer than most natural gas.

So much for casing head natural gas as treated in compression plants. Let us turn to absorption or drying plants as operated on so called dry gas used in cities. This kind of natural gas is consumed to the extent of almost 600,000,000,000 cubic feet per year. Absorption or drying plants were first considered for natural gas lines to rid them of condensate, (gasoline and water) that collected therein. The gasoline at-

tion would not fall off. Operators speak of it as "killing" the good gas.

The writer can state that there is a good reason for the production declining under such conditions, and that the careful casinghead gasoline man will see to it that gas too dry for treatment in a compression plant is not mixed with gas that is suitable. The matter is explained by Dalton's partial pressure law. Although the latter does not hold rigidly when applied to casinghead natural gas, the principle covered by law holds fully.

For every gas there is a certain critical temperature and pressure at which it can be liquefied. One can apply as much pressure as one desires, but if the temperature of the gas is not lowered to the critical temperature the gas can not be liquefied. The critical pressure is the pressure at which liquefaction is effected when the critical temperature is reached. Liquefaction can be accomplished at lower pressures than the critical pressure if temperatures below the critical temperature are used. A saturated vapor pressure curve of a particular gas will show all of these temperatures with their corresponding pressures. Pentane is one of the principal constituents of natural gas gasoline. The pressure required to liquefy it, when in the pure condition, and at a temperature of 68° F. is about 7½ pounds per square inch above atmospheric pressure. Notwithstanding this low pressure, many gasoline plants operate at pressure of 250 lbs. per square inch. Dalton's law offers the explanation. High pressures are needed because pentane or the other constituents of natural gas gasoline are not the only gases present. They are mixed with other gases, some of which are impossible to liquefy in ordinary practice and which, even if they were liquefied, would be so volatile they would immediately revert to the gaseous form when exposed to ordinary temperatures. They exert this important influence however on gasoline plant operation. They lower the partial pressure of the gasoline constituents so that high pressures are required to liquefy them, and the greater percentage of them present the higher the pressure required, at a given temperature, to extract the desirable gasoline constituents, and in some cases so high as to be prohibitive. This is just what "dry" gas will do if introduced into a compression gasoline plant. Not only will it be non-productive of gasoline itself, but it makes necessary higher pressures on the plant to keep up the normal production. In other words it "kills" the production, and as stated before, in many cases, requires prohibitive pressures.

The author is aware of one plant with a normal production of 800 gallons per day, working on twenty wells, where the production was increased 33% by cutting out 4 of the wells.

¶ University Libraries are asking for copies of the May and June 1916 issues of The Natural Gas Journal. We will greatly appreciate receiving these back numbers from subscribers who can spare them.

## NATURAL GAS COMPANIES VS. OTHER PUBLIC UTILITIES.

### Are Gas Companies Endeavors Appreciated?

BY H. C. REESER.

HAVE you ever noticed what a howl goes up when a gas company is short of gas for a few hours at a time, or perhaps three or four days in an entire winter; how the newspapers feature it, and how committees take it up with the Chamber of Commerce, or Public Utilities Commission, and demand an investigation?

Gas companies as a rule show a greater percentage of efficiency than any other public utility, and when one does fail temporarily it is so noticeable that many newspapers treat it as a news item. Yet the crack trains of the great railroads are hours late day after day and thousands of people are discommoded, but it is treated as a matter of fact, and very rarely do the newspapers say anything about it, and the public accepts the treatment philosophically. This is due, no doubt, in a great measure to the fact that the public is accustomed to such treatment and is familiar with the troubles and obstacles that a railroad has to overcome in order to give perfect service.

The public knows that tracks are crowded; that the rolling stock will break down; that the terminals are overtaxed, and that accidents will happen, yet you never hear of a committee taking any action, or travelers going before the Public Utilities Commission and complaining.

Trolley lines are invariably late in bad weather; telegraph and telephone lines are frequently out of commission, water lines freeze up, and the inconvenience and annoyance is accepted as a matter of fact.

The gas industry is essentially a mining proposition with, however, more unknown, uncontrollable, and uncertain features to cope with than exist in the mining of coal, or running railroads, and perhaps some day natural gas companies with their wonderful record of efficiency, will be better appreciated and the consumers other utilities.

## STANDARD OIL LOSSES $150,000,000.

DESTRUCTION of $150,000,000 of oil and oil equipments in the Ploesti fields of Roumania, has resulted from weeks and weeks of drilling from German lines. This was told about by S. L. LaMar, Standard Oil man of Bucharest, while stopping over at Pittsburg, on his way home to Clarksburg, Pa. Mrs. LaMar, accompanied her husband. Mr. LaMar related that "ten days before the Germans got over there to the oil fields, the Roumanians, under direction of the English and French officers, destroyed the major portion of the fields and equipments. This included all refineries, tankage and wells, and it will take three years to restore it all." Mr. LaMar was an assistant superintendent in the Moreni fields. Their losses were tremendous."

# Oklahoma Natural Gas

***Oklahoma's Natural Gas Production a Standing Invitation to Industries — 1916 was a Banner Year.***

BY C. M. SARCHET.

THE natural gas production of Oklahoma is a standing invitation to industries to locate in this State, and this fact is attracting particular attention at the present time because of reported scarcity of gas in eastern States, which heretofore have been the home of the big majority of the industrial concerns of the country.

Manufacturers in West Virginia held a meeting during the past month at Clarksburg, that State, to talk over ways and means of solving the gas problem, and the Oklahoma situation was discussed. As a result there is now a campaign in progress that will no doubt land a number of eastern factories in Oklahoma.

Of particular importance in the production of natural gas is the Dilworth district of the Kay County fields. This district is now producing 500,000,000 cubic feet daily and is a great gas producer, as will be seen. Wells in this community range in production all the way from 10,000,000 to 50,000,000 cubic feet of gas daily, and if proper conservation methods are followed this will continue to be a great gas area for many years to come.

Industries are now locating in the Dilworth district and applications are on file from various other industries in West Virginia, Pennsylvania and elsewhere, including plate glass, tin plate, carbon gas black, automobiles and various others including smelters. All are asking the prices at which gas can be obtained and the probable life of the Kay County field.

A report of the State conservation officer of Oklahoma, under date of November 15, 1916, showed there were 3,000,000,000 cubic feet of gas daily being produced in Oklahoma at that time and only 315,000,000 cubic feet being used daily.

### MANY GAS WELLS DRILLED.

The drilling records for 1916 show there were 359 gas wells completed in Oklahoma during 1916, including 165 in the Creek district, 73 in the Cherokee, 41 in the Cushing-Shamrock, 27 in the Osage, 11 in the Cleveland, 13 in the Dilworth, 4 in the Healdton, and 25 Wildcats.

The total wells in Oklahoma for 1916 were nine in excess of the number completed the previous year. Altogether there were drilled in Oklahoma, in 1916, 7,700 wells, of which 6,205 were oil producing, 359 gassers and 1,136 dusters. There were 127 gas wells completed in Kansas the past year, and 21 in Arkansas.

It is understood that the total natural gas production figures for 1916 have not yet been announced officially, but in making a report for the first nine months of the past year the natural gas companies indicated that all records would be broken as to total output and gross and net earnings.

According to this report, there were produced in 1915 and consumed 628,578,842,000 cubic feet, valued at $101,312,381, an increase of 36,712,109,000 cubic feet and of $7,196,657 over 1914, the previous record year. Estimates, made in this report, ran as high as $115,000,000 for 1916. Never before in the history of the industry had the demand for natural gas been so heavy.

### A GASOLINE INCREASE.

The natural gas companies of the country also reported for the first nine months of the past year that a far greater income was being derived from the natural gas gasoline industry than from natural gas. Gasoline production of natural gas companies for 1916 was estimated as twice as large as in 1915 when there were 65,364,665 gallons of gasoline, valued at $5,150,823, extracted from natural gas. The value for 1916, it was estimated, would be twice as large. The average recovery of gasoline from gas, for the entire United States, is 2.57 gallons per thousand cubic feet of gas. The average for Oklahoma is set at 3.7 gallons per thousand and for the Dilworth district is rated as nearly five gallons per thousand.

A lack of conservation has greatly injured the gas fields of Oklahoma in the past and according to gas company officials, unfortunately much the same is true at the present time in all Oklahoma fields.

Drilling the wells "wet," a process which permits the water to drown out the gas, is constantly followed, as is also the practice of letting the gas blow away, a total loss. If the wells are mudded properly the gas deposits are not injured, while water pressure, when the wells are drilled "wet," kills the gas, so 'tis claimed.

There are seven gas sands in the wells drilled in the Dilworth district, making this an unusually valuable district from a natural gas standpoint.

Dilworth is an attractive field both for the companies that distribute natural gas and for industries that use gas for fuel. At the present time it is one of the fields being depended upon by the Doherty companies to supply Kansas City, St. Joseph and other Missouri and Kansas cities.

Only recently it was announced by Henry L. Doherty in Kansas City in regard to the natural gas situation that he means to provide a big reserve that will be connected with the old Kansas Natural Gas Company lines and be ready at any time to be fed into the lines leading to that city.

"Several hundred thousand acres of gas land will be drilled at once," he said, "and be connected up but not used. This will give a reserve supply available any minute, ready to be uncapped and shot into the mains in event the present fields should die or prove inadequate."

In connection with the purchase of the Kansas Natural properties by the Doherty interests, it is stated there is to be built another 16-inch pipe line to Kansas City and be connected with the Dilworth district. Many wells are being drilled here by the Empire Oil & Gas Company, a subsidiary company, which is making Dilworth its Oklahoma headquarters. Forty locations for wells have been made, five strings of tools are running and teams are being kept busy all the time hauling to the field.

## CLOTHES DRYING INDOORS.

**How to Prevent Street Filth and Germs from Contaminating Our White Goods.**

WE are led to write the following by virtue of having received a letter from a prominent man in one of the eastern cities, who has been considering the purchase of a metal clothes dryer with several slides, upon which the clothes are hung during the process of artificial drying, but who having listened to an argument based upon unsanitary results therefrom, and having had his faith shaken, wrote us for information.

Our answer to his letter of inquiry directed his attention to the fact that whereas, in arguing with him for outdoor drying as more sanitary than indoor drying the argument could not have taken into consideration the microbes from street-sidewalks, and from the streets themselves, and the filth from the latter, in pulverized form, that is carried by the wind, and deposited upon clothes hanging in the yards of city homes.

We suggested that the one arguing with him, had also overlooked the fact that disease germs from houses where infectuous ailments are quarantined, may easily be carried on the wings of the wind and like street filth and sidewalk microbes be deposited upon pillow-cases that come into direct contract with our faces and our mouths and noses when breathing at night, and upon sheets between which we lie at night absolutely pocketed with that which has gathered upon the sheets while hanging in the yard.

The one arguing with our correspondent seems to have overlooked the fact that the handkerchief which we put to our faces, and the napkin with which we wipe our lips, if dried in the city yard, must, almost without question, carry germs and filth, which, to say the least, are undesirable and distasteful.

The one arguing with our friend also overlooked the fact that the white body-clothing which we wear, if hung in a city yard, must, like other white-goods thus dried, collect and carry their share of things to be loathed. On the other hand, the articles coming from our beds, our tables, and the articles of wearing apparel to be cleansed, if thoroughly washed in our own home laundries, and then dried in a gas-heated clothes dryer wherein the heat is very great (heat with its burden being expelled quickly through the flue of the chimney), rids the family-wash of the microbe pest, and absolutely guarantees it against the carrying of any sidewalk microbes, or street germs and filth.

There can be no comparison between the two methods from the standpoint of sanitation. These with the present form of dryer ventilation, and high temperature generated and distributed in the modern dryer, to quickly dry the clothes, the claim is made that the clothes will absolutely not grow yellow.

Some of the manufacturers of clothes dryers have claimed that the gas companies were of no account to them, as these companies made no effort to introduce clothes dryers, and that therefore it must be a matter of the-manufacturer-direct-to-the-householder. This should not be the case. On the contrary, there is an excellent field for the gas companies in this enterprise of clothes dryers for the home.

## DRY VACUUM PUMPS.

The Ingersoll-Rand Co., 11 Broadway, New York City, has recently issued two new catalogs on Dry Vacuum Pumps. Form No. 3037 covering the Straight Line Type and Form 3038 on the Duplex Type. Both machines are equipped with "Ingersoll-Rogler" Valves, are capable of maintaining a high vacuum and will handle discharge pressures of several pounds. The maximum degree of vacuum possible varies with the different machines, to within .6 inches of the barometer.

Pumps are offered in Steam and Power Driven Types in a large range of sizes and capacities and listed in the catalogs.

Catalogs are profusely illustrated in colors to show the machines in whole and in section. Copies free on request to the nearest Branch Office.

## FINANCIAL REPORT.

JO. P. CAPPEAU SONS.

**From March 1st to March 20th Inclusive.**

| | High | Low | Last |
|---|---|---|---|
| Caney River Gas | 48 | 44 | 48½ |
| Columbia G. & E. | 46¼ | 42 | 44 |
| Fayette Gas | .. | .. | 121 |
| Mfg. L. & H. | 73¼ | 64⅛ | 73 |
| Ohio Fuel Supply | 52½ | 51 | 51¾ |
| Ohio Fuel Oil | 21⅜ | 19½ | 21¼ |
| Oklahoma Gas | 101½ | 99 | 101½ |
| Osage & Oklahoma | .. | .. | 121 |
| Pgh. Oil & Gas | 17¼ | 12¼ | 17 |
| Pure Oil Com. | 25⅝ | 22¼ | 23¾ |
| Cent. Kentucky Gas | .. | .. | 22 |
| Kansas Gas | .. | .. | 35 |
| Lone Star Gas | 97 | 93½ | 97 |
| Union Gas | 180 | 179 | 180 |

# RESULTS OF DRILLING--LATEST REPORTS

## PENNSYLVANIA FIELD

### ALLEGANY FIELD.

### BRADFORD FIELD

### MIDDLE FIELD

### VENANGO CLARION

## SOUTHWEST PENNSYLVANIA

## WEST VIRGINIA

## SOUTHEASTERN OHIO

## PENNSYLVANIA DRILLS

### SUMMARY OF COMPLETED WELLS

| | | | | |
|---|---|---|---|---|
| West Virginia | 142 | 1,441 | 19 | 49 |
| Southeast Ohio | 87 | 899 | 17 | 6 |
| Total | 400 | 2,864 | 60 | 77 |

## CENTRAL OHIO.

**FAIRFIELD COUNTY.**

Walnut—E. Smith, Ohio Fuel Sup. ..... Gas

**ASHLAND COUNTY.**

Green—E. Ernsberger, Logan G. & F. ..... Gas
O. Guthrie, Ohio Fuel Sup. 2 ..... Gas
Mohican—M. Arnholt, Logan G. & F. 1 ..... Gas
Hanover—Glasgow, Ohio Fuel Sup. 1 ..... Gas

Total ..... 4

**MEDINA COUNTY.**

York—Curtis, Logan G. & F. 1 ..... Gas
Medina—Pythian Sisters, Medina G. & F. 2 ..... Gas
Westfield—Reynolds, Ohio Fuel Sup. 1 ..... Gas
Lafayette—Vaughn, Ohio Fuel Sup. 1 ..... Gas
G. Ballach, Freshwater & Co. 1 ..... Gas

Total ..... 5

**WAYNE COUNTY.**

Congress—Sullenberger, Logan G. & F. 2 ..... Gas
N. M. Bonawitt, Logan G. & F. 2 ..... Gas
E. G. Lingle, Ohio Fuel Sup. 5 ..... Gas
Dave Yost, Medina G. & F. 3 ..... Gas
Dave Yost, Medina G. & F. 4 ..... Gas
Franklin—E. Esterday, East Ohio Gas 1 ..... Gas

Total ..... 6

**CUYAHOGA COUNTY.**

Dover—M. Stejekal, Logan G. & F. 1 ..... Gas
C. E. Barkwill, C. E. Barkwill 1 ..... Gas

Total ..... 2

**VINTON COUNTY.**

Richland—Graves, Ohio Fuel Sup. 1 ..... Gas

**HOCKING COUNTY.**

Salt Creek—N. Karshner, Logan G. & F. 6 ..... Gas

**PERRY COUNTY.**

Thorn—J. & E. Bope, Logan G. & F. 3 ..... Gas

## CENTRAL OHIO FIELD.

**SUMMARY OF COMPLETED WORK.**

| | Gas | Rigs | Drg. | To'l |
|---|---|---|---|---|
| Licking | 0 | 0 | 4 | 4 |
| Fairfield | 1 | 1 | 2 | 3 |
| Knox | 0 | 1 | 0 | 1 |
| Ashland | 4 | 8 | 12 | 20 |
| Medina | 5 | 6 | 6 | 12 |
| Lorain | 0 | 0 | 3 | 3 |
| Wayne | 6 | 6 | 24 | 30 |
| Richland | 0 | 1 | 1 | 2 |
| Cuyahoga | 2 | 5 | 12 | 17 |
| Vinton | 1 | 14 | 17 | 31 |
| Hocking | 1 | 1 | 1 | 2 |
| Coshocton | 0 | 1 | 0 | 1 |
| Perry | 1 | 1 | 0 | 1 |
| Holmes | 0 | 1 | 0 | 1 |
| Total | 21 | 46 | 82 | 128 |

## INDIANA FIELD.

**PIKE COUNTY.**

Monroe—B. Wilhelm, M. Murphy 4 ..... Gas
Washington—A. H. George, A. B. Bement 1 ..... Gas

Total ..... 2

## KENTUCKY-TENNESSEE.

**ESTILL COUNTY.**

Irvine—P. Wolfinbarger, Mullen & Watkins 1 ..... Gas

**LINCOLN COUNTY.**

Parlor Grove—Shuler, Daniel Boone O. 1 ..... Gas
Albert Shuler, Daniel Boone O. 2 ..... Gas

Total ..... 2

**GREENCUP COUNTY.**

Russell—Bellefont O. & G. 1 ..... Gas

## ILLINOIS FIELD.

**CRAWFORD COUNTY.**

Honey Creek—Fred Rich, Ohio Oil 4 ..... Gas

## OKLAHOMA.

**WASHINGTON COUNTY.**

4-25-13, Holland, Halfmoon Oil 7 ..... Gas
29-28-13, Fee, Boeschlin et al 4 ..... Gas
4-25-13, Holland, Wolverine Oil 16 ..... Gas
4-25-13, Holland, Wolverine Oil 7 ..... Gas
15-26-13, Hartness, Straight et al 1 ..... Gas

Total ..... 5
Production ..... 7,000,000

**OSAGE DISTRICT.**

34-29-10, Indian Ill. O. & G. 2 ..... Gas
34-29-10, Indian Ill. O. & G. 3 ..... Gas
24-29-10, Indian Ter. Ill. Oil 4 ..... Gas
24-29-10, Indian Ter. Ill. Oil 5 ..... Gas
27-27-10, Indian Ter. Ill. Oil 1 ..... Gas
22-27-10, Indian Ter. Ill. Oil 2 ..... Gas

Total ..... 6
Production ..... 12,500,000

**CLEVELAND, PAWNEE COUNTY, MANNFORD.**

23-20- 7, Mann, Prairie O. & G. 2 ..... Gas
23-20- 7, Mann, Prairie O. & G. 1 ..... Gas

Total ..... 2
Production ..... 6,000,000

**CUSHING-SHAMROCK.**

64-17- 7, Boone, Iron Mountain Oil 5 ..... Gas
Production ..... 15,000,000

**TULSA, GLENN POOL, WICEY, KELLYVILLE.**

34-18-11, Spocoger, Sapulpa Brick 7 ..... Gas
18-17-12, Beams, Gypsy Oil 9 ..... Gas
28-17-13, Bunger, Rogers & Cox 5 ..... Gas
28-17-13, Bigpond, Tuxedo Oil 4 ..... Gas
18-17-12, Brenner, Queen City Oil 1 ..... Gas
35-17-14, Clinton, Sinclair O. & G. 1 ..... Gas

Total ..... 6
Production ..... 51,000,000

### OKMULGEE MORRIS

Gas

Gas

Total

Production

### HAMILTON SWITCH.

Gas

Production

### WILDCATS

Gas

Production

### BALD HILL BOOCK SAND

Gas

Gas

Total

Production

### WAGONER MUSKOGEE ROGERS COUNTIES

Gas

Gas

Gas

Gas

Total

Production

### WILDCATS

Gas

Gas

Total

Production

## KANSAS

### MONTGOMERY COUNTY

Gas

Gas

Gas

Gas

Gas

Gas

Gas

Total

Production

### BUTLER COUNTY

Gas

Gas

Gas

Gas

Total

Production

### CHAUTAUQUA COUNTY

Gas

Gas

Total

Production

### WILSON COUNTY

Gas

Gas

Total

Production

### NEOSHO COUNTY

Gas

Gas

Gas

Total

Production

### FRANKLIN COUNTY

Gas

Gas

Total

Production

### WILDCATS

Crawley County

Gas

Production

## ARKANSAS

Crawford County

Gas

Production

## KANSAS

### SUMMARY OF COMPLETED WORK

| | | | | |
|---|---|---|---|---|
| Montgomery | | | | |
| Chautauqua | | | | |
| Butler | | | | |
| Wilson | | | | |
| Neosho | | | | |
| Allen | | | | |
| Franklin | | | | |
| Miami | | | | |
| Wildcats | | | | |
| Total | | | | |

## OKLAHOMA

### SUMMARY OF COMPLETED WORK

| | | | | |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| Total | | | | |

## MID CONTINENT

### SUMMARY OF COMPLETED WORK

| | | | | |
|---|---|---|---|---|
| Oklahoma | | | | |
| Kansas | | | | |
| Arkansas | | | | |
| Total | | | | |

## TEXAS PANHANDLE.

### WILDCATS.

Palo Pinto County—
Jacques, Palmer, Owen & Wilson 1 ..... Gas
Holt, Sinclair Oil & Gas 1 ..... Gas
Coleman County—
Trickman, Robinson & Son 6 ..... Gas

Total ..... 3

## NORTH LOUISIANA.

Caddo—
23-21-16, Rogers, Caddo O. & R. 29 ..... Gas
8-20-15, Atkins, Caddo Oil Fields 4 ..... Gas
3-20-15, Muslow, Penn-Wyo. Oil 1 ..... Gas
Red River—
33-13-11, Sample, Producers Oil D-6 ..... Gas
Bossier—
18-15-12, Huron Land, Producers Oil 1 ..... Gas
3-16-11, Ward, Hodges Oil 1 ..... Gas
Miscellaneous—
17-13, Berry Fee, S. W. G. & E. 164 ..... Gas
17-13, Leonard, Producers Oil 1 ..... Gas
17-13, Wilson, Ark. Nat. Gas C. 53 ..... Gas
9-17-14, Country Home Assn., Atlas Oil 1 ..... Gas
23-21-14, Swanhaven, Richardson Oil 2 ..... Gas
9-20- 5, Mangham, Commercial O. & G. 1 ..... Gas

Total ..... 12

## NORTH LOUISIANA.

### SUMMARY OF COMPLETED WORK.

| | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Caddo | 17 | 915 | 1 | 3 |
| De Soto | 2 | 170 | 0 | 0 |
| Red River | 7 | 800 | 1 | 1 |
| Bossier | 4 | 60 | 1 | 2 |
| Miscellaneous | 15 | 0 | 9 | 6 |
| Total | 45 | 1,945 | 12 | 12 |

## GULF COAST REGION.

### HUMBLE.

Mason, Producers Oil 182 ..... Gas
Herman, Producers Oil 134 ..... Gas

Total ..... 2

### MISCELLANEOUS.

Nueces Co., Southern Gas ..... Gas
Brazoria Co., Texas Exploration 3 ..... Gas

Total ..... 2

## GULF COAST.

### SUMMARY OF COMPLETED WORK.

| Dist. | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Anse la Bute | 0 | 0 | 0 | 0 |
| Batson | 3 | 250 | 1 | 0 |
| Edgerly | 4 | 1,250 | 2 | 0 |
| Goose Creek | 12 | 26,550 | 1 | 0 |
| Humble | 30 | 7,115 | 12 | 2 |
| Jennings | 3 | 75 | 2 | 0 |
| Markham | 1 | 0 | 1 | 1 |
| Spindletop | 2 | 100 | 1 | 0 |
| Saratoga | 4 | 50 | 3 | 0 |
| Sour Lake | 18 | 6,260 | 6 | 0 |
| Vinton | 6 | 2,140 | 2 | 0 |
| Miscellaneous | 13 | 0 | 11 | 2 |
| Total | 105 | 43,790 | 42 | 5 |

## TEXAS-LOUISIANA.

### SUMMARY OF COMPLETED WORK.

| | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Texas Panhandle | 62 | 2,871 | 13 | 4 |
| North Louisiana | 45 | 1,945 | 12 | 12 |
| Gulf Coast | 105 | 43,790 | 42 | 5 |
| Total | 212 | 48,606 | 67 | 21 |

## STANDARD OIL SUBSIDIARIES.

JO P. CAPPEAU SONS

**From March 1st to March 20th Inclusive.**

| | | Open | High | Low | Last |
|---|---|---|---|---|---|
| £1 | Anglo-American ... | 16 | 17 | 16 | 17 |
| $100 | Atlantic Ref. ..... | 1050 | 1075 | 1030 | 1050 |
| 100 | Borne-Scrymser .... | 450 | 450 | 450 | 450 |
| 50 | Buckeye Pipe ..... | 102 | 108 | 102 | 108 |
| 100 | Chesebrough ..... | 400 | 400 | 400 | 400 |
| 100 | Colonial ..... | 50 | 50 | 50 | 50 |
| 100 | Continental ..... | 575 | 600 | 575 | 590 |
| 50 | Crescent ..... | 37 | 37 | 37 | 37 |
| 100 | Cumberland ..... | 125 | 135 | 125 | 125 |
| 100 | Eureka ..... | 215 | 215 | 215 | 215 |
| 100 | Galena Com. ..... | 160 | 160 | 160 | 160 |
| 100 | Galena Pref. ..... | 135 | 135 | 135 | 135 |
| 100 | Illinois Pipe ..... | 230 | 242 | 230 | 248 |
| 50 | Indiana Pipe ..... | 100 | 100 | 100 | 100 |
| 12½ | National Transit ... | 17½ | 18 | 17 | 17 |
| 100 | New York Transit.. | 210 | 210 | 210 | 210 |
| 100 | Northern Pipe ..... | 95 | 100 | 95 | 100 |
| 25 | Ohio Oil ..... | 380 | 393 | 380 | 388 |
| 100 | Prairie Oil ..... | 575 | 610 | 575 | 610 |
| 100 | Prairie Pipe Line... | 320 | 333 | 320 | 333 |
| 100 | Solar Refining ..... | 390 | 390 | 380 | 390 |
| 100 | Southern Pipe ..... | 200 | 200 | 198 | 200 |
| 100 | South Penn. Oil.... | 320 | 327 | 320 | 325 |
| 100 | Southwest Penn. Pipe | 105 | 110 | 105 | 110 |
| 100 | S. O. of California . | 301 | 301 | 292 | 300 |
| 100 | S. O. of Indiana ... | 840 | 875 | 825 | 825 |
| 100 | S. O. of Kansas ... | 560 | 560 | 545 | 545 |
| 100 | S. O. of Kentucky . | 700 | 730 | 700 | 730 |
| 100 | S. O. of Nebraska . | 590 | 600 | 580 | 580 |
| 100 | S. O. of New Jersey | 680 | 705 | 680 | 705 |
| 100 | S. O. of New York. | 280 | 319 | 280 | 319 |
| 100 | S. O. of Ohio ..... | 465 | 475 | 450 | 465 |
| 100 | Swan & Finch ..... | 95 | 100 | 95 | 100 |
| 100 | Union Tank ..... | 93 | 94 | 91 | 94 |
| 100 | Vacuum Oil ..... | 405 | 425 | 405 | 415 |
| 10 | Washington Oil .... | 30 | 30 | 30 | 30 |
| 25 | Penn-Mex. ..... | 55 | 55 | 50 | 50 |
| 5 | Internat'l Petroleum | 11¼ | 14⅜ | 11¼ | 14⅜ |

### INDEPENDENT OIL COMPANIES.

| | | | | | |
|---|---|---|---|---|---|
| 5 | Osage-Hominy Oil.. | 8⅞ | 9¾ | 8¾ | 9⅝ |
| 100 | Cities Service Corp.. | 283 | 295 | 280 | 292 |
| 25 | Pierce Oil ..... | 12½ | 14¾ | 12½ | 14½ |
| 50 | Midwest Refining ... | 93 | 130 | 93 | 130 |
| 25 | Tropical Oil ..... | 9⅞ | 10 | 9¼ | 9½ |
| 5 | Cosden Refining.... | 14½ | 15⅝ | 14½ | 15⅛ |
| 5 | Sapulpa Refining ... | 9 | 12 | 9 | 12 |
| 5 | Cosden Oil & Gas Com. ..... | 14⅛ | 15⅜ | 14⅛ | 14½ |
| 5 | Cosden Oil & Gas Pfd. ..... | 5 | 5 | 4⅞ | 4⅞ |
| 5 | Okla. Producing & Refining ..... | 07⅞ | 11⅜ | 9⅞ | 11¼ |
| 5 | Wayland Oil & Gas. | 4 | 4 | 4 | 4 |
| 10 | Merritt Oil ..... | 20⅝ | 30½ | 20⅝ | 30½ |
| 1 | Midwest Oil ..... | 65 | 83 | 77 | 79 |
| | Sinclair Oil & Ref.. | 53¼ | 56½ | 53¼ | 56½ |

# AROUND THE BELT

**New Wells, New Pipe Lines, New Contracts, Additions and Extensions. A Fund of Valuable News Gathered for the Journal Through Many Sources.**

## TRADE PERSONALS

[illegible] **Publisher's Note**

**FOR SALE** [illegible] Warren Pa

**WANTED**— [illegible]

**WANTED**— [illegible]

[illegible]

Robert Warren W [illegible] construction engineer is at present associated with the Hope Engineering & Supply Company of Pittsburgh Pa supervising the installing of several large [illegible] pumping stations for the Empire Pipe Line Company at Cherokee Kan and Ponca City Okla

Walter L V [illegible] is now Assistant General Superintendent of the Muskogee Gas & Electric Company Muskogee Okla

## DECEASED

Robert Warren L Superintendent Peoples Natural Gas Company Pittsburgh Pa died recently in Pittsburgh at the age of fifty years Mr Reilly was connected with the Peoples Natural Gas Company for a period of twenty eight years

## ITEMS OF FINANCE

[illegible] **Publisher's Note**

**NEW YORK—Buffalo**

Directors of National Fuel Gas Company have declared a regular [illegible]

**OKLAHOMA—Muskogee**

The Board of Directors [illegible]

**PENNSYLVANIA Pittsburgh**

[illegible]

# INCORPORATED

It will be noted that we here specifically point to natural gas companies that have been incorporated. Those desiring to learn of artificial gas companies that have received incorporation papers should refer to THE GAS INDUSTRY magazine, published at 60 Pearl Street, Buffalo, N. Y., which devotes its columns entirely to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being specifically issued for its respective field, thus each rendering 100% efficiency in the industry it covers.—Publisher's Note.

**KENTUCKY—Louisa**

The Yatesville Oil & Gas Company has been formed here with a capital stock of $100,000. Among those who are interested are: H. E. Packer, H. E. Wells and M. R. Labbee.

**Louisville**

The Empire Gas & Fuel Company has been formed with a capital stock of $100,000 with authority to add liabilities up to $1,000,000.

**Winchester**

The C. F. Neville Oil & Gas Company, capital stock $24,600, has been incorporated by Edward F. Feist, C. F. Neville and C. B. George.

H. S. Gilbert, J. S. Mullins, H. T. Lisle, Rufus Lisle, Stoner Ogden, Dr. H. C. Nunnelley and Dan Insko have filed incorporation papers for the Liberty Oil & Gas Company. The company is capitalized at $50,000 and has leases on 6,700 acres in Pulaski and Casey Counties, Kentucky.

**NEW YORK—Jamestown**

The Jamestown Gas Stove Corporation has been chartered with capital stock of $40,000. The directors are: C. Ray Lovejoy, Jamestown; Edward D. McKee, Warren, and Alexander M. McDonald of Warren.

**OKLAHOMA—Ardmore**

The United States Gas Well Extinguisher Company has been incorporated here with a capital stock of $10,000. Those interested are: W. R. Sink, B. S. Renegar and W. H. Riley, all of Ardmore. Capital $10,000.

**Okmulgee**

The Alpine Oil & Gas Company, capital $150,000, has been organized here by F. A. Young and J. S. Summers, Kansas City, Mo., and G. R. Horner, Okmulgee.

**Tulsa**

The Quaker Oil & Gas Company has been incorporated with a capital stock of $50,000. Those who are interested in the venture are: E. H. Jennings, Pittsburgh, Pa.; T. H. Jones, W. B. Carlon and P. F. Cole, Tulsa, Okla.

**PENNSYLVANIA—McKeesport**

The Johnson Gas Company has been incorporated here with a capital of $20,000. Among those interested are: C. L. Kelley and W. H. Johnson, both of McKeesport.

**Washington**

The Penn Oil & Gas Company has been incorporated with a capital of $50,000. The incorporators are: R. M. Paxton, John W. Leonard, S. B. Dannan, E. T. Caffrey, B. G. Hughes and H. B. Hughes, all of Washington.

# PER CUBIC FOOT—RATES

It will be noted that the gas rates referred to below are those referring specifically to natural gas rates. Those desiring to learn of artificial gas rates should refer to THE GAS INDUSTRY, published at 60 Pearl Street, Buffalo, N. Y., which devotes its columns entirely to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being exclusively issued for its respective field, and each rendering 100% efficiency in the industry it covers.—Publisher's Note.

**KANSAS—Kansas City**

According to the agreement recently reached by the Mayor and Henry L. Doherty, the rate next winter will be 35 cents per thousand for the first 4,000 cubic feet, and 50 cents per thousand for gas used over that amount.

**PENNSYLVANIA—Erie**

The Pennsylvania Gas Company, beginning with April 1st, increased its rates as follows: Domestic consumers will pay 37 cents, with 2 cents discount, making the rate 35 cents, an increase of 5 cents. Industrial and manufacturing rates are fixed at 37 cents with 3 cents discount, making it 34 cents net. Special rates for all schools or public buildings in the state are discontinued. Free gas to the county commissioners of Warren County is discontinued.

# GENERAL

It will be noted that the items appearing under this heading pertain specifically to natural gas matters, development in natural gas fields, etc. Those wishing to obtain a knowledge of the newest developments along artificial gas lines, are referred to THE GAS INDUSTRY magazine, published at 60 Pearl Street, Buffalo, N. Y., which devotes its columns exclusively to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being specificially issued for its respective field, and each, therefore, rending 100% efficiency in the industry it covers.—Publisher's Note.

**ALABAMA—Mobile**

According to a report, the Alabama Gulf Oil & Gas Co. has found gas in a test near this city, at a shallow depth.

**ARKANSAS—Hot Springs**

Natural gas as fuel for automobiles is being used successfully by W. T. Ellis of this city, who has invented a carburetor to mix the gas and air. Mr. Ellis uses the device on a 1913 Studebaker machine. The gas is compressed in a steel tank, and its cost does not exceed one-quarter cent per mile.

**CALIFORNIA—Lodi**

The Sacramento Natural Gas Company, which supplies this city, has offered the plant to the city for $75,000. The offer was made following a rate controversy, in which it was claimed by the people that the rate was too high.

**INDIANA—Geneva**

One hundred producing oil and gas wells in this field have recently been acquired by Albert E. Baur and associates. It is said that although the wells are producing to a fair extent, they will be abandoned and the equipment sold.

**Petersburg**

At a depth of [illegible] feet a very good flow of gas was struck in a well drilling in this section. The gas showed a strong pressure. Drilling is being continued to a lower level with the purpose of uncovering oil.

**KANSAS—Allen County**

Near Iola City a very large gasser has been uncovered on the Eastwood farm by the Northern Gas & Oil Company.

**Elmdale**

A very good well has been brought in by J. P. Allen, the Land Bank of Kansas. The gas was found at a depth of [illegible] feet and there is sufficient to supply several [illegible] homes.

**Geo City**

A well showing a flow of about [illegible] cubic feet is reported to have been brought in by the J. B. Kirkpatrick Smelting Company five and one-half miles north of Iola. The new well will be plugged temporarily and used by the smelting company when needed.

**Iola**

A well showing a flow of about [illegible] cubic feet is reported to have been brought in by the J. B. Kirkpatrick Smelting Company five and one-half miles north of Iola. The new well will be plugged temporarily and used by the smelting company when needed.

**Labette County**

[illegible] the Mutual Gas and Labette Gas Companies, [illegible] the Independent Oil & Gas Company, are drilling [illegible] the Whitehead farm [illegible] gas [illegible] oil.

**KANSAS—Neodesha**

The Hale Gas Company [illegible] Neodesha [illegible] Kansas. The [illegible] Kansas. The [illegible] the Kansas Natural Gas Company [illegible] a well natural gas.

The Home Public Service [illegible] gas [illegible] properties [illegible] Oil & Gas [illegible] which [illegible] Neodesha.

**Topeka**

[illegible] well [illegible] Topeka [illegible] Kansas Valley [illegible] Kansas [illegible] Topeka [illegible] gas [illegible] Topeka [illegible] each.

[illegible] Topeka [illegible] oil.

Kansas could easily have produced [illegible] feet of natural gas in 1920 if all the wells had been piped. A great many wells were not piped especially in Butler County. A large number of them of course have been capped.

**KENTUCKY—Louisville**

The Commercial Department of the Louisville Gas & Electric Company reports that during the week ended March 26th there was a gain of [illegible] meters and [illegible] stoves, gas heating appliances installed, etc. The gas output for the week showed a gain [illegible] over the corresponding period of 1919.

**LOUISIANA—Bossier Parish**

The Gulf Refining Company has completed a [illegible] gas well on the Hunter property at a depth of [illegible] feet.

**Caddo**

The Gulf Oil & Refining Company has a [illegible] gas well on the Lewis District.

**Morehouse Parish**

The Morehouse Oil & Gas Company has completed a well estimated to have a production of [illegible] cubic feet on the Corbett Lumber Company lease in section [illegible].

**MONTANA—Twodot**

The Mineral State Oil & Gas Company is drilling a test well seven miles west of this place.

**NEW YORK—Hunsdale**

A gas well was completed here recently.

**Manlius**

A gas well was [illegible] on the [illegible] farm. Three other wells are drilling near.

**North Tonawanda**

The Iroquois Gas Company of New York has made an application to the State Public Service Commission [illegible] gas [illegible] the properties of the New York & Ontario Natural Gas Company, the New York Natural Gas Company, the New York Natural Gas Company, the North Tonawanda Gas Company and the Citizens Gas Company of North Tonawanda.

**Portville**

[illegible] gas [illegible] Portville [illegible] gas was [illegible] depth [illegible] New York [illegible] gas [illegible] Portville [illegible].

**Rathbone**

[illegible] Gas [illegible] Rathbone [illegible] Steuben [illegible] Rathbone [illegible].

**Richburg**

The Public Service Commission has approved ot the transfer of the Richburg, Allegany County, Natural Gas Plant from F. L. Putnam to Leon A. Hardman, together with the franchises held.

**Sheridan**

The Frost Gas Company has completed a light gas well on the C. S. Hubbard Company's farm, near Sheridan.

**OHIO—Ashland County**

In Green Township, Ashland County, the Ohio Fuel Supply Company has drilled in a gas well in a second test on the southwest corner of the G. W. Brubaker 108 acres, section 2. The Logan Gas & Fuel Company also drilled a well in a test on the A. M. Guthrie 90 acres, in section 19.

The Logan Oil & Gas Company has a new 4,000,000-foot well on the Smith farm.

**Ashland**

In Green Township the Logan Gas & Fuel Company completed a good gasser on the J. M. Biddinger farm in section 11.

The Ohio Fuel Supply Company has a small well in its second test on the Adam Long farm, section 2.

**Cincinnati**

The Union Gas & Electric Company is contemplating remodelling one of the old gas work's buildings in the West End for use as a compressor station, which would enable the handling of 10,000,000 cubic feet of gas more than was possible during the past winter.

**Cleveland**

It is reported that in the Cleveland field forty-five gas wells have been abandoned since the first of the year on account of diminished or vanished production.

**Columbus**

The Public Utilities Commission has authorized the Cincinnati Gas & Electric Company to issue $1,531,000 bonds to retire outstanding bonds of similar value.

**Cuyahoga County**

In Strongville Township the East Ohio Gas Company's test on the northwest corner of the Bert Adams farm, Lot 51, is a very good gas well. The top of the sand was found at 2,854 feet and the well was drilled to a total depth of 2,876 feet.

**Hocking County**

The McCauley Oil Company drilled in a light gas well in a test on the southeast corner of the Catherine Burgoon 76 acres, section 35, Benton Township.

**Licking County**

In Licking Township the Columbus Natural Gas Company's No. 3 on the G. W. Irwin 235 acres, is a fair well and No. 4 in the northeast corner of the same farm, is also a fair gasser.

**Lorain County**

In Grafton Township, the Forest City Stone Company has a 1,000,000-foot gasser on the E. Barrance 32 acres, in lot 31.

The Logan Gas & Fuel Company, and its local subsidiary, the Citizens Gas & Electric Company, it is reported, will spend about $1,000,000 during the coming summer in development work in and around Lorain.

In this city the company will build a new brick and concrete office building on the site of its present building on Broadway. The new structure will be two stories high with provisions for the addition of a third story later.

**Perry County**

In Harrison Township the Chicago Oil Company completed a test on the Albert Smith farm. No oil was developed in the Clinton sand, but a gas pressure estimated at 200,000 cubic feet a day.

**Toledo**

The State Public Utilities Commission is making an investigation of the conditions surrounding the gas supply and distribution, so that measures may be taken to avoid a repetition, if possible, of the gas shortage experienced last winter.

**Trinway**

The Arco Oil & Gas Company has a well estimated to be producing 1,500,000 cubic feet on the Jay Little farm, two miles west of here. The Arco Company has made a location for another well a short distance to the eastward on the farm of C. B. Fawcett.

**Tuscarawas County**

In the shallow sand territory in southeastern Ohio, located inside the corporate limits of Urichsville, local men drilled a well on town property through the Berea grit and secured a good gasser.

**Washington County**

In the Grandview district, Grandview Township, the Matamoras Oil & Gas Company drilled a test on the Witten Hanlon farm through the Keener and Big Injun sands. It is a gasser with a capacity of 1,000,000 cubic feet a day from the two levels.

**OKLAHOMA—Baird**

The John C. Keys and others well in section 23-1s-10w is said to be good for 5,000,000 cubic feet.

**Bird Creek**

The Prairie Oil & Gas Company has a 7,000,000-foot gasser in No. 6 on the Lloyd property in Section 19-20-13.

**Broken Arrow**

A 20,000,000-foot well has been drilled in this district, by Kansas interests, with which W. Z. Boone is connected.

**Canadian**

The Cardinal Petroleum Company and the Choctaw Natural Gas Company have made three locations near Canadian, and drilling will commence shortly.

**Cotton County**

A 11,000,000-foot gasser has been drilled in near Walters. Wichita Falls, Texas, is to be benefited by the production, since the owners are piping it to that city.

**Drumright**

The No. 3 Shaffer well on the R. Chastian land in section 10-16-7 is reported good for 28,000,000 cubic feet.

**El Reno**

The El Reno Mill & Elevator Company has contracted with the El Reno Gas & Electric Company for a supply of gas for use under a 125 h. p. boiler.

PENNSYLVANIA—Greene County

McDonald

Pittsburgh

WEST VIRGINIA—Braxton County

Doddridge County

and Clarksburg or between Fairmont and Mannington.

The Hope plant at Hastings is already under construction and is expected to be finished in a few months. The Philadelphia Company hopes to have its plant completed inside of a year. The gas from both plants will be piped to Pittsburgh and there either used pure or mixed with the natural gas supply of that city.

**Gilmer County**

In Troy district the Hope Natural Gas Company drilled No. 5 on the A. L. Rymer farm through the Gantz sand. It has a strong gas pressure and spraying oil at the rate of 5 barrels a day. In the same district the Castle Brook Carbon Company drilled a test on the George Norman farm through the same formation. It is a gasser.

On Trace Fork, Dekalb district, the Hope Natural Gas Company's No. 2 on the Benjamin Radenbaugh farm is a light gasser in the salt sand.

On Steer Creek, Center district, the Hope Natural Gas Company drilled its test on the F. M. Minnie farm through the Big Injun sand and developed a fair gasser.

**Harrison County**

On Crooked Run, Coal district, the Clarksburg Light & Heat Company's No. 3 on the Artha M. Garnett farm is a gasser in the fifth sand.

In Union district the Hope Natural Gas Company's second test on the G. W. Post farm is a gasser in the fifth sand.

**Lewis County**

In Freemans Creek district the Hope Natural Gas Company's test on the W. H. Frost farm is a gasser in the Big Injun sand.

In Court House district the Reserve Gas Company has a Gordon sand gasser at its test on the J. L. Lovett farm.

**Marion County**

On Bartholomew Run, Mannington district, the South Penn Oil Company has drilled its test on the Burchineal heirs' farm through the fourth sand. A fair gas pressure was developed in the Gordon sand.

On Buffalo Creek, Mannington district, West Virginia, the South Penn Oil Company has now drilled a second test on the D. L. Cunningham farm through the Gordon sand. It is a light gasser.

**Monongalia County**

On Drunkard Creek, Clay district, the Philadelphia Company got a fair Maxon sand gasser at its test on the D. C. Core farm.

On Indian Creek, Grant district, the same company's test on the J. J. Musgrove farm is a gasser in the Big Injun sand.

**Point Pleasant**

The Point Pleasant Natural Gas Company, in a letter to William G. Barnhart, United States Attorney, has offered free of cost the use of a large store room at Point Pleasant for the recruiting and drilling of soldiers. The room has two large plate glass windows, and is equipped with heating and lighting facilities. It is situated opposite to the federal building.

**Ritchie County**

In the Hughes River Pool, Clay district, the Independent Oil & Gas Products Company drilled No. 3 on the C. M. Darnold farm through the Big Injun sand. It is a gasser located 500 feet southwest of No. 1 on the same farm.

In Murphy district the South Penn Oil Company completed No. 8 on the Sarah J. Lemon farm. It is a gasser in the salt sand.

On the north fork of Hughes River, Grant district, the Carnegie Natural Gas Company has drilled a test on the John Burns farm through the Squaw sand. It is a gasser in that formation.

On Beeson Run, Clay district, the Carnegie Natural Gas Company drilled its test on the Harrison Lamm farm through the Maxon sand and developed a gasser with an estimated capacity of 7,000,000 cubic feet a day.

**Roane County**

In Smithfield district the United Fuel Gas Company drilled a test on the F. P. Looney farm through the Big Injun sand. It is a gasser in that formation.

On Little Creek, Spencer district, the Pure Gas Company completed a test on the Willia Walker farm. It is a gasser in the Berea grit, with a capacity of 500,000 cubic feet a day.

**Tyler County**

On Muddy Creek, Ellsworth district, the Manufacturers Light & Heat Company has a Gordon sand gasser at its test on the David E. Bennett farm.


¶ *a stitch in time*

saves gas leaks, gas leaks are money leaks --- If your **threads** are perfect and not damaged in handling pipe, in shipping, in piling and hauling, it means money-in-labor saved, and gas-loss-at-leaky-joints minimized.
Take the **"Stitch in Time"** by **Protecting the Threads.**
Instruct mills filling your orders to **always** protect threads with **"COLONA"** pipe thread protectors.

**Colona Mfg. Co.,** **Vandergrift Bldg., Pittsburgh, Pa.**

...Centerville district the Carter Oil Company drilled a good test on the J. S. Hamilton farm through the ... Venango sand. It is a strong gasser in that formation and is 1½ miles south of the Pure Oil Producing ... production on the G. A. Riggs farm.

**Wetzel County**

... Long Drain Run Church district the Carnegie Natural Gas Company's test on the Benjamin Hartman farm is a gasser. On the same stream and in the same district the Philadelphia Company's test on the Lloyd E. Shreve farm is a light gasser in the Marcus sand.

**TEXAS—Dallas**

... Natural Association of the Texas Gas ... will be held in the Coal Chamber of Commerce ... 19 and 20.

... Association now has over fifty members and ... hoped to be present on hand to take part in this ...

... Committee has the matter ... papers ... and addresses of ... interesting ... ... dealing with both artificial and ... ... under preparation. C. H. Seeder ... Commerce Street, Dallas, is Secretary ...

**ONTARIO—Kent County**

... Petrolia Romney field ... Natural Gas ... ... the ... farm ... west of Port Alma which is reported ... ... test.

... Natural Gas Company is drilling ... ... farm ... Dover ... Mosley.

... Manufacturing Company ... Lloyd E. Hagar ... ... Dover ... ... ...

# BE SURE !!

To visit Booth 104 at the ***Natural Gas Convention,*** Buffalo, and see the very latest developments and great improvements on---

## FOXBORO TRADE MARK ORIFICE METERS

Everyone interested in the accurate measurement of Gas should avail himself of this excellent opportunity to become acquainted with the most---

ORIFICE PLATE AND FLANGE
(PATENTED)

**Accurate --- Simple --- Flexible --- Durable**
**GAS METER MADE**

Many new features will be shown for the first time.

*WIRTE FOR BULLETIN NO. AR-86*

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**Foxboro, Mass., U. S. A.**

NEW YORK CHICAGO PHILADELPHIA PITTSBURGH
BIRMINGHAM, ALA. ST LOUIS, MO. SAN FRANCISCO

**15 MILES 16 INCH**
**35 MILES 10 INCH**

# Attention Gas Men !

## In Stock for Immediate Delivery

We have in stock for immediate delivery Fifteen miles 16" and Thirty-five miles 10" all steel couplings for high pressure lines. Steel was bought when prices were low. If anticipating using either of these sizes it will pay you to investigate.

We also have a complete stock of smaller sizes.

**ALL COUPLINGS GUARANTEED**

*WE SOLICIT YOUR INQUIRIES*

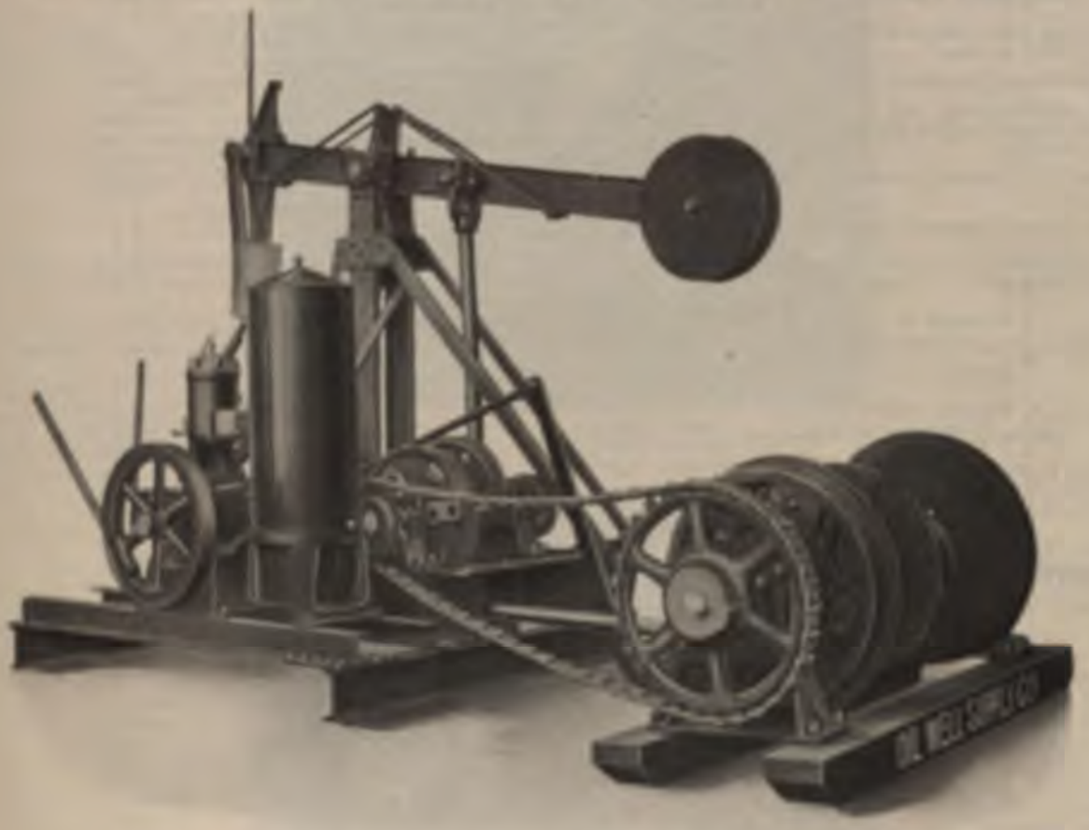
**Custer Coupling Co.**
**Bradford, Pa.**

# Everything For Oil and Gas Wells

"OILWELL" TRADE MARK

## BRANCH STORES IN ALL OIL FIELDS

## "OILWELL" STRUCTURAL STEEL UNIT PUMPING OUTFIT



*Gear Driven by Engine — For Pumping Wells 2,000 Feet and Over in Depth.*

These outfits are very popular for pumping water from gas wells, and are equally well adapted for pumping oil wells.

The above outfit is especially designed for deep wells. We have other outfits for shallower wells.

The hoist shown in the above illustration will spool 3,500 feet of ⅝-inch line.

Send for Bulletin No. 1 which describes in detail all "Oilwell" Unit Pumping Outfits, or inquire at any of our 67 Branch Stores.

# OIL WELL SUPPLY CO.

PITTSBURGH

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# Natural Gas and Gasoline
## JOURNAL

SUBSCRIPTION—
$2.00 IN THE U. S.

CONTENTS FOR MAY, 1917

VOLUME 11
THIS NUMBER 5


## PUBLISHER'S NOTICE


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HARRIS S. BIGELOW, *Secretary.*

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JOSEPH F. GUFFEY, President Natural Gas Association of America.

D. O. HOLBROOK, President Association of Natural Gas Supply Men.

# MOTOR TRUCK SERVICE.

IN our visiting of gas companies we have been much interested to note the tendency that has become almost rampant in some companies toward the use of motor trucks, versus all horse vehicles.

Large trucks, small trucks, and delivery cars are now found in almost all of our cities, these bearing the name of the gas company either upon closed or open bodies.

Large trucks are a necessity in field service in the hauling of casing, pipe, drilling equipment, etc., and lighter automobiles for transporting individuals through otherwise impassable country to operations.

If the trucks were brought together that are now used in the United States by gas companies, it would already make an enormous fleet, and would represent practically all makes of cars from the "joke" car to the highest type of trucks made in the United States.

Trailers are used to excellent advantage, these "extensions" being put into service by various companies, thus making out of a small, light car, a very long, quick-running, light service car.

Companies that have not already adopted motor car service, and companies that jumped into the same at an earlier period, and so have worn out the vehicles purchased long since, should give careful consideration not so much to the amount of the investment as to what may be accomplished, and how economical, by this, that, or the other car.

The matter of service, applies to both trucks and tires, therefore neither should be purchased without thorough investigation as to their qualifications in the line of service demanded in gas company equipment.

Truck data on file at the editorial office of this magazine may, upon request, be made of service to any of our gas company subscribers.

Lucius S. Bigelow

# FROM THE EDITORIAL MAIL BAG

## ARTIFICIAL CLOTHES DRYING

### The Sanitary Way, the Clean and Wholesome Way

[illegible]

## A GREAT SHORTAGE OF GAS

### A Topic Not Infrequently Dwelt Upon in the Natural Gas Field But Now Applied to the Artificial Gas Field

[illegible]

### TO CONSUMERS OF GAS

for coal, it is almost impossible to get any kind of coal.

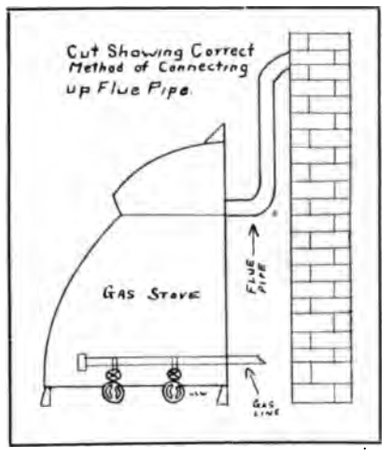
3. Owing to the shortage of all kinds of fuel for domestic use, the householder is using gas for house and room heating. This enormous and unusual demand, together with the very limited supply of gas-making materials, makes it necessary for us to ask you to be as economical as possible in the use of gas.

If each consumer of gas will bear this in mind and assist us in this way, it may be the means of keeping up an adequate supply of gas during this unheard-of and trying period.

(Signed) V. F. DEWEY,
Vice-Pres. and Gen'l Mgr.

## HOW TO CONNECT RANGE WITH FLUE.

THE following wrinkle is given us by one who has had experience in the connecting of gas ranges, and who states that it is remarkable how many ranges throughout the country are connected improperly with the chimney flues. Our correspondent contributed this to the publication that is issued locally by the Ohio Fuel Supply Company at Columbus, Ohio, of which Mr. W. Re Brown, at the head of the company's New Business Department, is editor.




Note the wrong and the right way, in the illustrations.

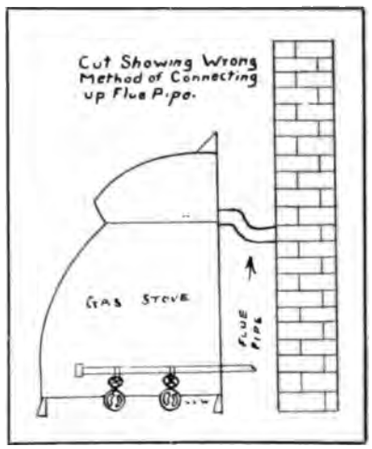
"Several times this winter, our attention has been directed to gas stove installations that have not been giving satisfaction. The consumer nearly always blames either the stove or the gas and, upon investigation, we have found the trouble to be in the flue pipe and draft connections.

"The flue pipe connection, although overlooked by many, is the most essential part of a gas stove installation. You must have enough draft to carry the fumes off successfully. Run your flue pipe into a chimney.

"Running a pipe outside through the wall means trouble. If this is absolutely necessary, run your regular size flue pipe up inside a larger pipe on the outside of the house. Carry this outside pipe up several feet. Running the regular flue pipe up the inside of a larger pipe leaves an air space between the flue proper and the outside pipe which does not allow the inner pipe to cool off quickly, which would spoil the draft.

"A straight flue pipe from the stove to the chimney is practical if the draft in the chimney is strong, but never elbow your pipe down from your stove to the chimney.

"Many people think that it is a necessary condition of burning gas that moisture (sometimes called 'sweat') should form on the walls and windows. This is absolutely not true. If the gas appliance is properly installed, there will be no moisture. When you find moisture forming on your walls and windows, change the flue pipe on your gas appliance.




"Of course, no gas appliance should be used without a flue connecting it with the chimney or outdoors. Always see that the gas fumes are carried outdoors. REMEMBER—SAFETY FIRST, although gas is the best and safest fuel in the world when properly used."

### EDWARD A. FILENE, OF BOSTON, SAYS:

"If American employers are farsighted, they will begin to put as much hard thinking into the problem of men as they have put into the problem of machinery, for, finally, that contentment of labor which is based upon a welfare that springs from justice and frank dealing is the only soil from which permanently prosperous business can spring.

"All of the initiative in solving the labor problem must not in the future come from the employees. If the employers of America do not solve the labor problems by business statesmanship, the employees of America will determine the outcome by force; and what labor cannot get in the future by the physical force of strikes, it may be able to get through the legal force of legislation and the incom taxing power."

**WHERE WE WILL ALL MEET**

McKINLEY MONUMENT AND VIEW OF BUFFALO FROM NIAGARA SQUARE.

SEVENTY-FOURTH REGIMENT ARMORY.

BUFFALO CHAMBER OF COMMERCE.

ARMORY OF THIRD FIELD ARTILLERY.

Upon entering Buffalo harbor, those taking the trip from Cleveland to Buffalo by steamer will be reminded of our illustration showing a lighthouse and look-out tower. Both are stationed at the right as the steamer enters the harbor; just beyond these structures will be seen the life-saving station.

ENTRANCE TO BUFFALO HARBOR

PANORAMIC VIEW OF AMERICAN AND HORSESHOE FALLS.

WHIRLPOOL RAPIDS.

Our illustration of Lafayette Square, looking from Main Street, pictures the Buffalo Public Library, with tower, just to the left of the Soldiers' Monument, Lafayette Hotel, almost back of the Soldiers' Monument, with the Brisbane Building, one of the large office buildings, to the right. Broadway, upon which is located the Auditorium, where the Convention and Exhibition will be held, extends eastward, and is to the left of the Public Library building.

The Natural Gas Exhibition opens Monday morning, May 14th, 9 o'clock. The boat arrives at Buffalo

PASSING WHIRLPOOL RAPIDS.

7:30, Buffalo time. Breakfast may, however, be had on the boat, and little time will be lost after landing, as the Snow-Holly Works of the Worthington Pump & Machinery Corporation, located in Buffalo, has done the very handsome thing by offering (with its compliments) automobile conveyances that will be at the steamer landing, to convey the members from the steamer to the several hotels.

UPPER STEEL ARCH BRIDGE.

This is a very considerable item in the way of convenience to the members, and due appreciation should be made manifest to the Worthington Company, which, being accustomed to doing things on a big scale in the building of its gas-engines and compressors, makes good its record through this wholesale invitation to the members of the Natural Gas Association who will arrive in Buffalo via steamer on Monday

morning. Officers of the Worthington Company will be at the boat to receive the members.

The officers of the Natural Gas Association of America are:

JOSEPH F. GUFFEY.....President
Pittsburgh, Pennsylvania.
GLENN T. BRADEN.....Vice-President
Tulsa, Oklahoma.
THOMAS C. JONES.....Secretary-Treasurer
Delaware, Ohio.
DAVID O. HOLBROOK, Resident Secretary.

The officers of the Association of Natural Gas Supply Men are:

DAVID O. HOLBROOK.....President
Natural Gas Association
Pittsburgh, Pa.
W. B. GLOVER.....Vice-President
Oil Well Supply Company
Pittsburgh, Pa.
T. C. CLIFFORD.....Treasurer
Pittsburgh Meter Company
East Pittsburgh, Pa.
LARMOUR ADAMS.....Secretary
Metric Metal Works
Pittsburgh, Pa.

The sessions of the Convention, at which papers will be presented, etc., will open Tuesday morning, May 15th, with President Joseph F. Guffey in the chair. The members will be welcomed by Mayor Louis P. Fuhrmann of Buffalo; Mr. John M. Garard, Vice-President and General Manager of the Ohio Fuel Supply Company, Columbus, Ohio, will respond for the Association.

The subject of rates will be presented by Mr. Leslie B. Denning, President of the Lone Star Gas Company, and Counsel for the Ohio Fuel Supply Company.

"Efficiency in the Operation of Gas Compressing Stations," will be presented in paper form by T. R. Weyman, Chief Engineer, United Natural Gas Company.

The interesting subject of "Mixed Artificial and Natural Distribution in Cities," will be presented by A. B. Macbeth, Vice-President and General Manager Southern California Gas Company, Los Angeles, Cal. This subject is one of deep interest in view of diminishing natural gas in some sections where artificial gas is obtainable.

"The Effect of Publicity on Business Relations," will be the subject of a paper by John W. Lansley, Secretary Southwestern Gas & Electric Company, Chicago.

"Co-operation Between Buyer and Seller of Natural Gas Supplies," is the subject of a paper not prepared by one, thus viewing the subject from a single standpoint, but this is a paper prepared by the Directors of the Association of Natural Gas Supply Men, and will treat the subject from the viewpoints of manufacturers in the various lines of supply business. The paper will be read by Larmour Adams, Secretary of the Supply Men's Association, in behalf of the directors of the Association.

"Wrought Iron Pipe For Use in the Natural Gas Field," is the subject selected for James Ashton, Metallurgical Engineer, A. M. Byers Company, Pittsburgh.

"Deep Well Drilling" is another topic, this by A. R. Gray, Assistant to General Superintendent, Peoples Natural Gas Company, Pittsburgh.

The Association of Natural Gas Supply Men will furnish luncheon at noon each day to members of the Natural Gas Association and the Association of Natural Gas Supply Men wearing badges.

On Monday night a smoker and cabaret will be held at Hotel Lafayette for members wearing badges.

On Tuesday at two o'clock the picture of the convention will be taken and immediately afterwards special cars will be boarded for the trip to Niagara Falls and the Gorge Route, tickets for which will be provided by the Supply Men's Association for members of the Natural Gas Association and the Association of Natural Gas Supply Men wearing badges. The special cars will return from the Gorge trip to Niagara Falls about 5:30, and the members can use their own pleasure as to whether to return immediately to Buffalo or spend some time around Niagara Falls, as the tickets are good returning to Buffalo any time Tuesday.

Tuesday evening the exhibit hall will be open to the public.

Wednesday evening the annual beef steak dinner and cabaret will be held at Hotel Lafayette.

For those desiring to proceed to Buffalo by train from Pittsburg, a special will be run from Pittsburg to Buffalo, leaving the Pittsburg & Lake Erie Station at 10:30, Pittsburg time, Sunday night, May 13th. There will be a reduced rate for those who wish to take advantage of a party ticket. Checks to cover such tickets should be sent to Arthur Booth, 435 South Avenue, Pittsburgh. The rates are:

| | |
|---|---|
| One Way Party Fare | 5.79 |
| Lower Berth | 2.00 |
| Upper Berth | 1.60 |
| Drawing Room | 7.00 |

Pullman rules require two passengers to the drawing room.

The boat trip from Cleveland to Buffalo must not be misunderstood as in any sense competing with the night train trip from Pittsburgh to Buffalo, nor does the train trip compete with the boat trip. There will be some who will want to run through direct on the night train from Pittsburgh, while there will be others from Pittsburgh and that territory who will want to join those coming through by lake via Cleveland, and who will thus find it possible to enjoy a social evening aboard ship. The plan is such as to accommodate all.

One hundred dollars in prizes has been offered by the Supply Men's Association. Individual notices have been sent out by the Association, and large wall hangers have appeared in the offices and departments of the various gas companies, thus already through those channels the industry has been advised of the plan, though first of all through the pages of the

[illegible] Natural Gas and Gasoline Journal in the months of [illegible] February and April announcements were made [illegible] large display upon the index or title pages of that [illegible] magazine directing attention to the prizes and the plan [illegible] Details regarding this plan will be issued by the [illegible] Meters Association at the Exhibition Hall. The [illegible] will require a visit on the part of every competing [illegible] to each and every booth, with an inquiry at [illegible] booth made of the exhibitors, but we will not say [illegible] lest the keen edge of anticipation might be taken [illegible] Suffice it to say that the plan is a clever one that [illegible] amount of money Secretary offered in prizes is [illegible] while and that all should take part, thus to make [illegible] out for the judges to decide upon who are the [illegible] Come one and all, Buffalo welcomes you.

### That Niagara Falls Trip

[illegible] Niagara Falls trip will include the great Gorge [illegible] The party will leave Buffalo at two o'clock local [illegible] at the Auditorium. This will be an affair of [illegible] interest and pleasure. Our illustrations of the [illegible] will be found attractive. The upper steel arch bridge [illegible] across which the belt cars pass from the United [illegible] the Dominion of Canada, the land of our allies [illegible] which the splendid Canadian troops went forth [illegible] have been doing such notable work.

[illegible] four illustrations the American Falls will be [illegible] the right, the view being taken from Goat Island [illegible] Canadian shore is seen to the left. The river in the [illegible] is flowing to the Whirlpool.

[illegible] view of the illustrations shows a boat passing the [illegible] Rapids on the American side, the [illegible] at the bottom of the Gorge.

[illegible] picture is a panoramic view of the American [illegible] Falls. This picture is taken from the [illegible] side. The route while on the American side the [illegible] past the Whirlpool Rapids is wild and romantic [illegible] rushing torrent at times and [illegible]

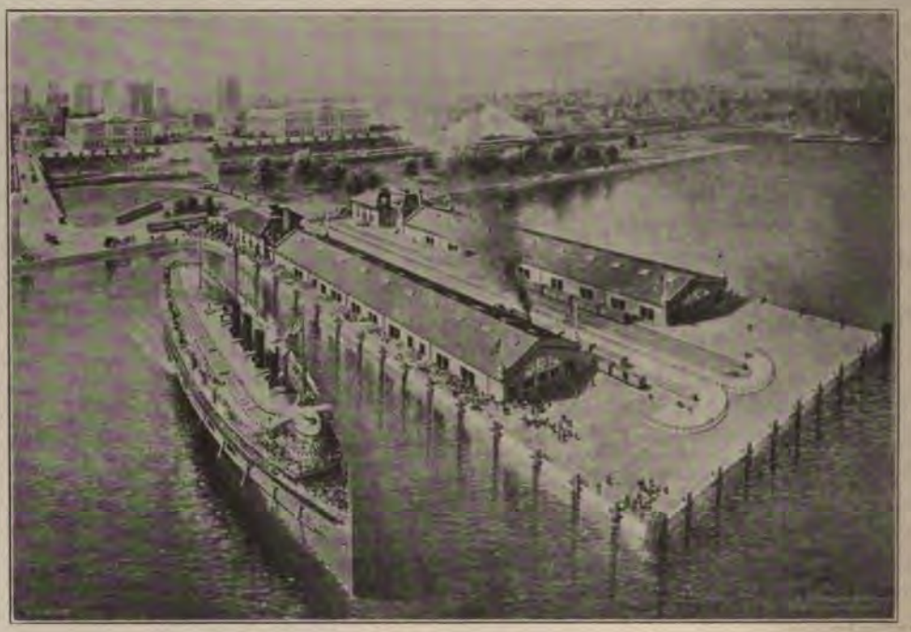
[illegible] the Falls [illegible] the American [illegible] Natural Gas Supply Men [illegible] gas men and supply men [illegible] of the Association.

### List of Exhibitors

[illegible]

JOIN THE
GAS-MEN'S
PARTY

# CLEVELAND TO BUFFALO



# *By* LAKE ERIE STEAMER

*GOOD COMPANY*

*DELIGHTFUL TRIP*

LEAVING
CLEVELAN
EVENING OF
MAY 13TH
ARRIVE
BUFFALO
MONDAY MORNING
OPENING CONVENTION

# NATURAL GAS — BUFFALO CONVENTION

## ALL RAIL TO CLEVELAND --- STEAMER TO BUFFALO

## JOIN THE STEAMER PARTY

To Natural Gas Association of America Members

A plan has been arranged whereby the members of the Natural Gas Association of America who will attend the annual convention in Buffalo the week of May 14th may enjoy a delightful social evening on one of the large Lake Erie steamers en route to Buffalo, leaving Cleveland the evening of May 13th, arriving in Buffalo on the morning of the 14th.

Those from Oklahoma, Texas, Kansas, etc., should plan to arrive in Cleveland on the 13th in season to join the steamer party, even though not arriving in Cleveland before the evening, as the steamer does not sail until eight o'clock p. m. Central Standard Time.

An invitation is extended by Mr. Martin B. Daly, President and General Manager of the East Ohio Gas Company of Cleveland, to all members of the Association coming to Buffalo from Pennsylvania, West Virginia, Ohio and all western states, to make the East Ohio Gas Company offices their meeting place, or as it might be termed, headquarters, on the 13th of May, after arriving on various trains during the day in Cleveland. Mr Daly will throw open his private offices for the convenience and pleasure of the delegates, and will hold open the remainder of the building as well This is a special courtesy, as the 13th is Sunday, and therefore the building is usually closed It will be open on this occasion only to members of the Association.

One can readily see that it would be a convenience at Mr Daly's office, and to the management of the steamboat company to know as nearly as possible how many will avail themselves of the opportunity to be of the party. Therefore a postcard addressed to the Cleveland and Buffalo Transit Company, Cleveland, Ohio, will be appreciated and will do the trick The steamboat company will communicate the information thus received by them to Mr Daly, and at the same time will set apart either staterooms or berths in staterooms, as may be desired and indicated on the post cards.

The rates on the steamer are $1 00 for upper berth, $1 50 for lower berth, these two in an individual stateroom, or whole statercom to one person, $2.50.

It will be a great convenience if members will advise the steamboat management, and, through it, Mr Daly how many will be in the party A general gathering of this nature on the steamer on the evening of the 13th, and a meeting of friends during the day at Mr Daly's offices in the East Ohio building will be a very decided pleasure

It is not usually possible to open the convention week with a general gathering aboard ship The opportunity, therefore, should be passed by none

*Cleveland & Buffalo Transit Co.,*

*W. M. Rogers,*

Traffic Manager

# Expert's Recommendation

NOT long since investigations were made at Hamilton, Ont., Canada, by Samuel S. Wyer, Gas Engineer, of Columbus, Ohio, resulting in the following statement to the mayor and members of the Citizens Gas Committee.

Investigation was brought about on account of *excessive leakage, electrolysis, and a desire to find a better method than formerly in vogue, for the charging of gas to the citizens of Hamilton.* The report, which was the outcome, read as follows:

1. Basis of Gas Measurement.

The natural gas that you are distributing is measured in apparatus that has recently been checked, and no question can be raised regarding the accuracy of these measurements. For this reason, the losses must be located at some other place.

2. Gas Leakage.

The average leakage in 625 manufactured gas plants in the United States is 10 per cent. of the gas sold.

Leakage in your plant is more than double this per cent. This is abnormal and is due primarily to the causes discussed in the next section.

3. Electrolysis.

The street railways operated in and passing through Hamilton are so constructed and operated that the return current is delivered to the rails and negligently allowed to stray from the rails on to the underground water and gas pipes. When these return currents leave the underground water and gas pipes, to go back into the soil, they will always injure the pipe. The action here is exactly the same as that in silver plating; that is, the current travels only, by virtue of the removal of the metal that it is leaving.

The high tension lines passing through the city have nothing to do with this trouble, since the electrolysis trouble is caused solely by the return direct current from the street railway system.

4. Electrolysis Tests.

Tests made to determine the presence of stray currents on your water and gas lines, on Friday, January 19th, show conclusively that both your water and gas mains are in an exceptionally dangerous condition, and at places are being rapidly destroyed. Near the car barns the water main (which, by the way, had weakened so that it burst, due to electrolytic action) was 50 volts positive to the street car track. This is an exceptionally serious hazard.

5. Dangers from Electrolysis.

The constant eating away of your water and gas mains, by the stray current now negligently allowed to go on to these lines, weakens the mains and may soon make parts of your water mains useless for fire protection purposes. The gas mains, of course, are doubly dangerous on account of the leakage of gas, having a tendency to produce conditions favorable for gas explosions. Serious gas explosions at Mansfield and Chillicothe, Ohio, were directly traceable to conditions similar to those existing in Hamilton today.

The electrolysis danger is such a menace that the United States Bureau of Standards in its annual report, on pages 72 and 73, gives a page and a half to an enumeration of the dangers. The only thing that will give you relief will be for the street railway company to so construct its tracks as to cut down the leakage of currents to a minimum, or eliminate them entirely, as is done in Cincinnati by means of a double trolley. Merely bonding the rails, while it will give some relief, will not suffice. Provision must be made to take the current off the rails, in order to produce safe operating conditions.

7. City's Power to Secure Relief.

There can be no question but that the city has ample power to protect its own property, and the lives of its citizens, from the abnormal dangers and hazards that now exist, as a result of the stray currents now negligently allowed to wander away from the street railway tracks and on to the underground water and gas mains.

Canton, Ohio, has just recently passed an electrolysis ordinance that has been very effective in securing the desired relief. A number of other towns have passed similar ordinances.

This whole electrolysis problem has had a very thorough discussion in the recent Preliminary Report of what is known as the American Committee on Electrolysis. Also the United States Bureau of Standards has published 14 bulletins aggregating 934 pages covering the Bureau's extensive investigations in various cities in the United States.

8. Rate for Natural Gas.

The retail price of 30c that you are now charging for your natural gas service is not remunerative and can never be made so under conditions prevailing at Hamilton, Ohio. That is, the plant must continue to be operated at a loss until such time as you change your rate and secure adequate compensation for your natural gas service.

The conditions in Hamilton, Ohio, are radically different from average natural gas conditions, as will be seen by the following, being the consumption and income per domestic consumer per annum.

Average for Ohio, Hamilton, Ohio:

| | | |
|---|---|---|
| Annual consumption per domestic consumer | 91 "M" cu ft. | 65 "M" cu. ft. |
| Annual income per domestic consumer | $27.30 | $21.51 |

To continue operating the plant at a loss, under present 30c rate conditions, is a species of rank discrimination in what you are making the tax payers who are not natural gas consumers pay for the under-paid service of those who are consuming natural gas. Your only relief will be to increase your rates, making the net price per "M" cubic feet either 40c straight, or adopt the sliding scale so generally used in Indiana, as shown in the schedules referred to in Section 11 herein. As a matter of common justice, a sliding scale similar to the Indiana schedules, is more equitable to all consumers than the

...gas the rate. If the rate is raised the ... is raised enough so as to make the plant not ...

...ment of Natural Gas Service

...mmission's appreciation that natural gas ... ...ce to the people of Hamilton is worth ... ...ment of artificial gas. It is also ... ...ommission that after a careful ... ...ion of the matter it is clear that ... ...ot be maintained at the present ... ...ld be necessary to increase the ... ...ld be increased.

...Increase

...ommission is of the opinion that the ... ...ld be increased to 30c per M. ... ...ld be a reasonable rate for the ... ...ld be sufficient to enable the ... ...ld be sufficient to enable the ... ...ld be sufficient to enable

# Welding Steel Mains

***E. E. Lungren of the Western United Gas and Electric Co., Aurora, Ill., Tells of Their Own Experience in Welding Mains of Steel Pipe.***

THE growth of the use of the process of oxy-acetylene welding and cutting of steel has been phenomenal, as evidenced by statistics which show that the sale of welding apparatus in 1916 was practically double that of 1915. This growth is largely due to the extensive application of the process to the construction of gas mains and pipe lines, inasmuch as the use of the process in the arts has been more or less firmly established for a number of years. A majority of the larger companies have experimented with the method and are now using it wherever possible. In natural gas and oil fields, especially in Oklahoma and Kansas, an enormous amount of pipe is being welded. The method has been used under all conditions, from congested city districts to country pipe lines, and in each, varied advantages are offered over previous methods.

Greater ease in manipulation, smoother progress, and lower costs obtained by welding in pipe-line work are advantages not to be overlooked, but in reality they must stand secondary to the value of the line after it is completed, as will be shown later.

Although the process of welding gas mains is in its infancy, it has sprung into rapid popularity and there is a wealth of information at hand, which makes it possible for those contemplating its use to be successful at the start. The general methods of procedure as laid down by the pioneers are commonly followed, but the details of better practice which are the result of a rather slow growth must come through the contributions of the experiences of the various companies. Hence, it is the object of the writer to correlate to a degree the results of former practice with those of the Western United Gas and Electric Company, and to make recommendations based on our experience in laying over fifty miles of welded main during the past season.

## ADVANTAGES OF WELDING.

### LEAKAGE.

There are still a large number of distribution engineers who doubt the advisability of instituting welding because they feel that previous methods of laying mains have proved satisfactory, and that the special attention required in changing systems would be unwarranted. It is a fact that some gas men have become sluggish on the question of leakage, and have come to accept "unaccounted for" as a matter of course and an unavoidable evil. They are not excited over leakage figures unless they show a sudden increase, whereas in other lines of business an actual waste of 10—15 per cent. would demand investigation.

Every summer it is necessary for us to have at least one or two gangs of four men spend their entire time on maintenance of trunk pipe lines of screw pipe. These gangs renew sleeve and clamp rubbers, install new clamps, re-pack valves, etc., and all this aside from emergency cases which are handled by the different districts. On two of our lines, consisting of 40 miles of 8-inch pipe carrying gas at 50 pounds pressure, there are sections where nearly every coupling is covered by a leak clamp, in which some of the rubbers must be renewed every few years. During the past five years we have installed 1,064 rubber leak clamps on 156 miles of 4-inch high pressure pipe line and 1,318 clamps on 62 miles of 8-inch line. This is perhaps not unlike the experience of other companies, but it serves to show one item in the cost of maintaining screwed lines against coupling leakage.

If, then, we could joint mains by a method which would materially cut down this waste without sacrificing strength or convenience in construction, we would be justified in using this method even at an increased cost; but if we found by using this method that we actually added strength to the line at a *lower* cost, we would not be justified in adhering to *screw-pipe*.

In welding, these conditions can be obtained with the use of extra-heavy flanged steel valves and the elimination of rubber expansion joints, and we thus approach the ideal in leak-proof main construction. The properly welded joint is not only leak-proof during the construction period, but it is a positive assurance against the development of an incipient leak. Sometimes we find a sandhole in a weld, but it is always detected when testing, and is readily repaired by fusing the iron and building up around the hole. If a break should occur in a welding line, due to contraction stress on a poor weld, it must of necessity be of such size that it is quickly found and repaired; whereas, in a screw line a large number of small coupling leaks will develop which may never be detected except by barring.

Following we show the results of leakage tests on a new welded line and on a system of screwed pipe which has been in use for some years. This does not form an absolutely fair comparison inasmuch as the test on the welded line was made immediately after completing the line, whereas the test on the system of screwed pipe included the street mains of ten small towns which are connected with consumers. The test in the latter case was made during the period of minimum consumption, between the hours of 1:00 and 3:00 A. M., and the leakage indicated by the drop in pressure agreed within 2% of the actual figures of "unaccounted for." All of the

trunk were operating under governors and hence the leakage was based on the drop in pressure in the trunk lines. The welded line, being one of our first, was installed with cast iron screw valves and expansion joints, which accounts for the fact that there was an appreciable loss.

LEAKAGE ON WELDED AND SCREWED LINES

1. Welded Line

| Description | Gauge Pressure Line | Pressure Drop per Hr. Line | Leakage Per Hr. Line | Leakage Per Mile of Main Per Hr. Line | Leakage per mile of pipe per hr. Line |
|---|---|---|---|---|---|
| 8 miles of 6" | | | | | |
| 6" | | | | | |
| 2. Screwed Lines | | | | | |
| Trunk Lines | | | | | |
| 11 miles of 8" | | | | | |
| 8" | | | | | |
| 6" | | | | | |
| 4" | | | | | |
| 3" | | | | | |
| 2" | | | | | |
| Low Mains | | | | | |
| 4 miles of 2" | | | | | |
| 1½" | | | | | |
| 1" | | | | | |
| 3 Compression tanks | | | | | |
| Valves, etc. | | | | | |

STRENGTH

The weak point in a screwed line is either in a joint made with a cast iron fitting. A welded joint however when properly made is as strong as the pipe itself or it may even be stronger, depending on the amount of filling metal. Cast iron specials such as crosses, tees, drips, etc., which are always in danger of breaking, are eliminated and specials are welded up as needed from the pipe in the yards. When a line is laid without strain the only strain it will encounter is that of contraction due to drop in temperature. A drop in temperature of 100 Fahrenheit will produce a stress of about 3,000 lbs. per square inch. Since the ultimate strength of steel is about 60,000 lbs. per square inch contraction strains would not cause ruptures unless there was a flaw in the pipe.

We would not say that a welded line is absolutely free from danger of breaking because of expansion, but we feel otherwise. During the past winter we have had ten steam weld breaks and one gas break. Another of these welds had been made by first class welders and the breaks clearly indicate that the welds had been made with the pipes butted together and the ends had not been forced to the butt. The moral to be learned from this experience is that men should not be allowed to work until they have had plenty of practice under competent supervision in the pipe yard.

Here we show the results of tensile tests on 8" welded pipe, made by A. J. Fleming of Swarthmore College as shown in the Proceedings of the American Gas Institute for 1914.

TENSILE STRENGTH OF WELDED JOINTS

| Specimens | Kind of Pipe | Kind of Weld | Leaking through weld at pressure of lbs. | Maximum pressure applied lbs. | Pressure at Failure |
|---|---|---|---|---|---|
| No. 1 | Wrought iron | Flame | | 900 | Not worked |
| No. 2 | " | V | 900 | 900 | |
| No. 3 | Steel | Flame | 900 | 900 | |
| No. 4 | " | V | 900 | 900 | Burned |
| No. 5 | " | Sleeve | 900 | 900 | Not welded joint |

OPERATORS

In developing a corps of operators the first step should be the employment of an experienced welder who can take charge of the instruction. Care should be taken in selecting the men who are to be taught to weld as it requires mechanical ability and the ability to appreciate the value of proper heats. It has been our experience that young men acquire the knack very readily. Welding is an excellent trade and the men should be brought to realize that it is a good opportunity for them.

The men are taught the general principles of welding and are shown how to regulate the flame for different pressures on various heads. It is important that they are shown how an excess of acetylene will cause carburization, and an excess of oxygen will produce a "burned" weld. They are then allowed to weld pipe of small sizes and the joints made are tested with high pressure gas and then are broken with a sledge in order that they may watch the progress of their work. After two weeks of this kind of work the men become quite proficient. Companies which would not require a number of operators and which would not find it profitable to have a man to do welding only, can send one of their men to work in the shop of large apparatus manufacturers where they are thoroughly taught the art of welding.

WELDING APPARATUS

There are a number of welding outfits on the market which offer many advantages over the oxygen and acetylene. We have used the Prest-O-Lite tank with the gas regulators and have had very good results with the tanks. We have found that welders favor the Prest-O-Lite tanks because of the high heat which they develop and the ease with which they can be regulated.

GOGGLES

[illegible] We have found that welders favor the Prest-O-Lite tanks because of the high heat which they develop and the ease with which they can be regulated.

OUTFIT CARTS

A cart is necessary for carrying the welding outfit from one place to another. A convenient cart is made as follows:

WELDING MATERIAL

Oxygen and acetylene are obtainable [illegible] gas and are also free of the high pressure

as service stations are located in all parts of the country it is possible to obtain prompt shipments any place. The acetylene should not be discharged at a greater rate per hour than one-seventh of the capacity of the containers as the acetone has a tendency to come over with the gas and cause carbonization of the iron. The use of acetylene generators on line work is not practicable because of the inconvenience in piping the gas to the welders who may be widely separated at times.

The filling iron used should be the best grade of Norway iron and for most work the use of wire 5-32″ diameter is common practice. In welding pipe 8″, and larger, ¼″ rods may be used to advantage in that the iron does not tend to run so rapidly in the very hot flame necessary for these sizes. Bessemer iron rods are on the market at a somewhat lower price than Norway iron, but we have found that the difference in cost in relation to the cost of the weld was so small that it did not warrant the experiment.

Fig. 6. Welding 8″ Pipe. Method 2.

Fig. 1. Welder's Outfit and Cart.

Fig. 5. Welding 8″ Pipe. Method 1.

### PIPE SUPPORTS.

Figure 2. A pipe support which we have used to great advantage in lining up pipe, 4″ and smaller, preparatory to welding, consists of a piece of 2½″ angle iron, 2 feet long, welded to two pieces of 1½″ pipe, 30 inches long. The pipe is lined up by simply placing the lengths in several of these angle irons and it can be turned easily in them as the weld progresses. By using five or six of these supports the pipe may be lined up without delay to the welder. For sizes larger than 4″ the pipe is lined up on 2″ x 4's, or 4″ x 4's, and rolled during welding.

### ROLLER.

Figure 4. We use a very convenient form of roller for moving long sections of large pipe. In making up sections ahead of the ditching gang it often happens that these sections must be moved several feet in order to make the final tie-ins; by using a number of rollers of this type the work is greatly facilitated. When an obstruction, such as a roadway cross-over, occurs above the sub-grade of the trench a section may be moved along the bottom of the trench on these rollers.

### VALVES.

In the construction of welded lines without expansion joints, it is important that valves shall be of a type that will withstand contraction strains. The valve chosen should be one whose smallest cross-sectional area will show a strength at least as great as the strength of the pipe. In order to eliminate all threaded joints, flanged valves should be used with the pipe welded into the companion flanges. The total cross-sectional area of the bolts should be at least one-fourth greater than the area of the pipe, inasmuch as the bolts must withstand not only contraction strains but also the stress induced in making up the joint.

We have used extra heavy cast steel special gas flange valves and we obtained companion flanges with one foot nipples welded in, from the manufacturer. Lead gaskets are used in making up the flange connections.

A valve recently designed by Mr. Keppelman, of San Francisco, is attracting some attention. It is a heavily constructed gate valve, operating somewhat on the principle of a stop-cock and is so designed that the dirt which is found in high pressure lines will not affect proper seating.

Figure 3 shows the sketch of a valve station which we installed at the intersection of an 8″ and a 6″ high-pressure line. The valves with the companion flanges were bolted to the cross the day before the line was to be cut. The four lines were shut down and bagged off and the old cross was cut out so that the nipples bolted to the valves would just fit in. Then the valve station was slipped into position and welded in.

### MAIN EXTENSIONS.

When the old main ends with a valve or cock a welded section of three or four lengths, threaded on one end, is screwed in; the opposite end extends above the ditch where the welding may be continued, thus eliminating a ditch weld. In making main extensions future laterals should be provided for by welding a nipple with a valve into the side of the main. For low pressure the nipple may be welded shut on the end and when later extended the nipple may be bagged off and the welded plug cut off. A bag-hole may be welded shut when there is low pressure in the main by supporting a four-foot piece of 6″ or 8″ pipe a few inches over the hole so that the flame is carried away from the operator.

A lateral may be cut in on an existing high-pressure main by carefully welding a short nipple to the main, building up the weld to give the necessary strength. The main may then be tapped through the valve installed on the end of the nipple. Mr. Wilde, in his recent paper before the American Gas Institute, has described a method in detail for tapping through a valve.

### SERVICE CONNECTIONS.

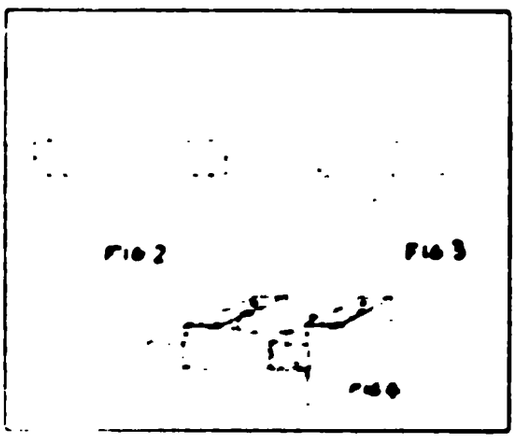
As a substitute for saddles, line couplings may be welded on the main with the pressure on and the service connection made up with a street tee and street ell as usual, provided screw-pipe is to be used on the service. If services are to be all welded it is better practice to weld a welded tee to the main. The upright arm of the tee is threaded and after tapping is closed with a cap.

EXPOSED PIPE

TYPICAL METHODS OF WELDING

DEGREE OF CHAMFER

LAYING PIPE MILES OF SINGLE PIPE



tion to this, five helpers were kept busy lining up the pipe and shifting the long sections into place so that there was no delay to the operator before starting a new weld. Two welders made up 80 foot and 160 foot sections, while the third made the 320 foot sections and then tied-in with the stationary weld. Two welders working on a 160 foot section, being turned by one helper over the ditch, works well. Out of 1,320 welds on this line, about 200 were stationary above the ditch and only three were made in the ditch.

The welders began the work using No. 8 heads, but with more experience we found that the work could be done much more rapidly with the No. 10. The welder should not be induced to use the larger head until he is absolutely capable of controlling the iron, inasmuch as the size of head sets the pace and the welder must keep up. On this line two welders averaged about 16 turning welds a day each, while the other welder made seven stationary and five turning welds. At a cross-road, where we were holding up traffic, a weld was made in 13 minutes; this is a rate, however, which could not be maintained all day.

### TESTING.

On this line we were particularly fortunate in being able to make up long sections above the ditch before testing. We supported a section of 4,000 feet long on 4″ x 4″'s above the ditch ready for testing; in no case did we test until one-half mile of pipe was welded. Driveway cross-overs for the farms along the line were made by lowering the pipe partway into the ditch on 4″ x 4″'s set crossways, then laying planks across the ditch. By testing only in long sections we economized on the gas used, as no valves were installed.

When the main was ready for testing it was capped with a rubber-gasketed cap which had been tapped for set screws, and the gas turned in at 30 pounds pressure. Each joint was tested with soap-suds, and the smallest leaks were easily found. In the first 190 joints tested 32 small sand-hole leaks were found, but as the work progressed and the welders became more experienced, the number of leaks was cut to a minimum. In the last mile not a single leak was found. The welder who made all the stationary welds did not have a leaky joint on the whole job.

Small leaks may be welded up with pressure on the main if the operator is careful not to fuse through the pipe. Sufficient strength is given by building up the iron considerably at the patch. If there is any possibility of an explosive mixture being present in the main, the patch should not be attempted until the main has been purged.

### LOWERING THE MAIN.

After testing and repairing leaks the main was lowered into the trench by the use of two chain blocks supported on wooden horses. The main was lowered with the gas pressure on so that if a break should occur, it would be readily noticed. The first part of the line was re-tested after lowering into the ditch, but as no additional leaks were found the practice was discontinued.

We believe that mains, 8-inch and larger, should be lowered into the trench with chain blocks or ropes as there is less danger of the pipe being laid under strain. With the smaller sizes, however, it is good practice to throw the main into the ditch; this serves as a good test for the strength of the joint.

### A RIVER CROSSING.

One of our mains was laid under a river which is seventy feet wide and two to three feet deep. Owing to the fact that the river was to be dredged subsequently, it was necessary to lay the main four feet below the river bed.

A coffer-dam was built half-way into the stream, and the five-foot offset shown was cut and welded on the road, using four pipe lengths. The offset was slid into position on skids and held with chain blocks while the tie-in was made. The main was then capped, tested and lowered into the ditch. The coffer-dam was opened and another one built on the opposite side of the stream to include the stub end of the pipe. An offset similar to the one mentioned above was made above the ditch, lowered into position and welded into the stub-end below the bed of the river. The ease with which such bends are made by gusseting the ends of the pipe, with the elimination of special fittings or fire-bends, stands out as one of the big advantages of welding.

The 8-inch line ended by connecting in on a 4-inch line at right angles. An 8″ x 4″ welded cross was welded in solid in the three lines and an 8″ valve was installed on the open side of the cross for use on a proposed extension.

### COST DATA.

We do not believe that the slightly lower costs obtained by welding mains should be considered as a leading advantage of the process because the cost of jointing mains is really small compared to the total cost of the line in any case, and hence have not taken the subject up under that head. The determining arguments in favor of welding are strength and minimum leakage, but companies contemplating the use of the process should not be deterred therefrom by fear of excessive cost. This Company, starting with no previous experience, has laid its welded lines at a somewhat lower cost than previously laid screwed pipe.

Table I. shows the cost of laying several 4-inch and 8-inch screwed lines as compared with 4-inch and 8-inch welded lines laid under practically similar conditions. The costs as shown on the screwed lines include only the labor connected with jointing pipes, testing and lowering into the ditch. The costs of welded pipe include the time of welders and all welders' helpers in jointing, testing and lowering the main, and also the cost of all welding material. On the face of the figures it appears that the screwed lines were laid at a lower cost, but a further analysis proves the contrary.

TABLE I COMPARATIVE COSTS OF SCREWED AND WELDED LINES

| Size | Screwed Lines: No. Feet | Screwed Lines: Cost Per Foot | Welded Lines: Added Cost of Pipe Threaded Per Foot | Welded Lines: No. Feet | Welded Lines: Cost Per Foot |
|---|---|---|---|---|---|
| 6" | 327,372 | 3.12 cts | 1.6 cts | 24,624 | 4.67 cts |
| 8" | 166,533 | 4.96 cts | 3.1 cts | 27,390 | 6.88 cts |

In ordinary times, pipe companies give an added discount on bevel end over threaded pipe, which amounts to almost two dollars per ton. With 4 inch pipe this makes a difference in cost of 1.1 cents per foot, and with 8 inch 2.5 cents per foot.

Further, we may consider the shrinkage in laying screwed lines caused by the loss of about four inches of coupling at each joint which is paid for as pipe. This amounts to 0.5 cent for 4 inch and 1.0 cent for 8 inch. This may seem to be drawing a fine distinction but it serves to prove the point.

TABLE II COST OF WELDED JOINT

| Size | No. Welds Joining per cent Pounds | Oxygen per cent Cu. Ft. | Acetylene per cent Cu. Ft. | Ratio Oxygen to Acetylene | Cost per cent Welder Hours Material |
|---|---|---|---|---|---|
| 3½" | 6.4 | 0.6 | 1.6 | 1.1 | $ 1.81 |
| 4" | 9.3 | 1.1 | 2.1 | 1.1 | 2.78 |
| 6" | 12.0 | 3.5 | 5.4 | 1.1 | 4.2 |
| 8" | 13.0 | 5.5 | 12.5 | 1.1 | 1.42 |

Table II shows the material required in making welds for each job. In planning future work these items of total amount of material used and from the percents of several sizes with costs per joint computed figures serve as a better guide than costs which are computed by taking gauge readings on oxygen and acetylene containers and by noting the time required by the welder on one joint. These costs are not offered as anything phenomenal, but they show what might be expected when a company is developing a corps of operators in its first year's work.

Table III shows cost data compiled by Mr. Hirst of the Peoples Gas Light and Coke Company, which is taken from a general average of ditch and turning work as encountered in their work. This table shows the economy of welding mains even in the congested

TABLE III AVERAGE WELDING COSTS

| Size | No. Joints | Cost Labor | Cost Acetylene | Cost Oxygen | Cost Filling Rod | Total Cost |
|---|---|---|---|---|---|---|
| 6" | 571 | $ 1.17 | $ 2.31 | $ 1.18 | $ .. | $ .. |
| 8" | 271 | .. | .. | .. | .. | .. |
| 6" | 110 | .41 | .52 | .44 | .14 | 1.51 |
| 8" | 268 | .8 | 1.04 | .77 | .. | 3.18 |
| 10" | 97 | 1.62 | 1.98 | 1.88 | .77 | 6.25 |

Instances of a large city where underground obstructions are numerous

## STANDARD OIL SUBSIDIARIES

| | Open | High | Low | Last |
|---|---|---|---|---|
| 61 | Anglo American | 17 | 17½ | 16½ | 16½ |
| $100 | Atlantic Ref | 100 | 100 | 100 | 100 |
| 100 | Buckeye Pipe Line | 61 | 61 | 61 | 61 |
| 50 | Chesebrough | 68 | 68 | 68 | 68 |
| 100 | Continental | 90 | 90 | 90 | 90 |
| 50 | Crescent | 115 | 115 | 115 | 115 |
| 50 | Cumberland | 32 | 32 | 32 | 32 |
| 100 | Eureka | 160 | 164 | 160 | 160 |
| 100 | Galena Com | 211 | 211 | 211 | 211 |
| 100 | Galena Pref | 98 | 98 | 98 | 98 |
| 100 | Illinois Pipe | 135 | 135 | 135 | 135 |
| 100 | Indiana Pipe | 211 | 218 | 222 | 222 |
| 50 | National Transit | 18 | 18 | 18 | 18 |
| 100 | New York Transit | 200 | 200 | 194 | 194 |
| 100 | Northern Pipe | 100 | 100 | 98 | 100 |
| 25 | Ohio Oil | 361 | 361 | 335 | 345 |
| 100 | Prairie Oil | 600 | 600 | 560 | 560 |
| 100 | Prairie Pipe Line | 215 | 215 | 208 | 208 |
| 100 | Solar Refining | 180 | 180 | 160 | 160 |
| 100 | Southern Pipe | 200 | 200 | 196 | 200 |
| 100 | South Penn Oil | 325 | 325 | 308 | 308 |
| 100 | Southwest Penn Pipe | 110 | 110 | 104 | 110 |
| 100 | Standard of California | 278 | 278 | 270 | 280 |
| 100 | Standard of Indiana | 580 | 580 | 580 | 580 |
| 100 | Standard of Kansas | 630 | 630 | 600 | 600 |
| 100 | Standard of Kentucky | 700 | 700 | XD 650 | 650 |
| 100 | Standard of Nebraska | 630 | 630 | 630 | 630 |
| 100 | Standard of New Jersey | 648 | 648 | 648 | 648 |
| 100 | Standard of New York | 310 | 314 | 288 | 293 |
| 100 | Standard of Ohio | 600 | 600 | 600 | 600 |
| 100 | Swan & Finch | 98 | 98 | 100 | 100 |
| 100 | Union Tank | 92 | 92 | 90 | 90 |
| 100 | Vacuum Oil | 600 | 600 | 570 | 570 |
| 50 | Washington Oil | 50 | 50 | 50 | 50 |
| 100 | Penn Mex | 60 | 60 | 47 | 47 |
| 100 | Internat'l Petroleum | 14 0 | 14 0 | 13½ | 13½ |

### INDEPENDENT OIL COMPANIES

| | | | | |
|---|---|---|---|---|
| | 23½ | 24 | 23½ | 24 |
| | 13½ | 13½ | 13 | 13 |
| | 14½ | 14½ | 14½ | 13½ |
| | | | | |
| | 14 0 | 4 0 | 13½ | 13½ |
| | 11 0 | | | |
| | 14 0 | 4 0 | 13½ | 13 |
| | 6 0 | 6 0 | 6 0 | 6 0 |
| | 0 | | 0 | |
| | 8 0 | 8 0 | 7 0 | 7 0 |
| | 27 0 | 27 0 | 26 | 26 0 |
| | 10 | 10 | 10 | 10 |
| | 0 | | 8½ | 9 0 |

### KNEW THE VALUE OF ADVERTISING

It is stated that the successful John Wanamaker on his first day in business took in $24.96. The next day he started an advertising campaign with $24.00 of his first day's receipts retaining 96 cents for personal maintenance. Now will you believe in advertising?

# RESULTS OF DRILLING---LATEST REPORTS

## PENNSYLVANIA FIELD.

### BRADFORD FIELD.

| | |
|---|---|
| Lot 29, C. of B. G. & P. Corp. 3 | Gas |
| Warrant 2676, United Nat. Gas 268 | Gas |
| Total | 2 |

### MIDDLE FIELD.

| | |
|---|---|
| Jones, National Oil 3 | Gas |

### VENANGO-CLARION.

| | |
|---|---|
| Stubler, Stubler & Co. 3 | Gas |
| Lauer, Robert Lamberton 1 | Gas |
| Total | 2 |

### BUTLER-ARMSTRONG.

| | |
|---|---|
| Wade, Girard Oil & Gas 1 | Gas |
| Bell, Bean et al. 1 | Gas |
| Cravatt, D. B. Campbell 2 | Gas |
| McEvoy, Hinchberger & Co. 6 | Gas |
| Kechner, Fry & Co. 1 | Gas |
| Total | 5 |

### SOUTHWEST PENNSYLVANIA.

| | |
|---|---|
| Washington— | |
| Wilson, Peoples Gas 1 | Gas |
| Cring, Greensboro Gas 3 | Gas |
| Froby, Peoples Gas 1 | Gas |
| Milltown— | |
| Cunliffe, Phila. Co. 1 | Gas |
| Mt. Morris— | |
| Spragg, Peoples Gas 1 | Gas |
| Six, Peoples Gas 2 | Gas |
| Lough, Mfrs. L. & H. 1 | Gas |
| Total | 8 |

## WEST VIRGINIA.

| | |
|---|---|
| Mannington— | |
| Lowman, Reserve Gas 1 | Gas |
| Law, Hope Gas 1 | Gas |
| Thrah, Hope Gas 2 | Gas |
| Cole, Hope Gas 2 | Gas |
| Strothers, Victoria Oil 1 | Gas |
| Taylor, Victoria Oil 1 | Gas |
| Taylor, Hope Gas 1 | Gas |
| Batson, Ashcraft & Co. 1 | Gas |
| Post, Hope Gas 2 | Gas |
| Norman, Castle Brook Carbon 1 | Gas |
| Frost, Hope Gas 1 | Gas |
| Adams, Phila. Co. 1 | Gas |
| Wilson, Phila. Co. 1 | Gas |
| Harden hrs., Carnegie Gas 2 | Gas |
| Mary A. Nicholson, Hope Gas 1 | Gas |
| Wm. M. Nicholson, Hope Gas 1 | Gas |
| L. D. Nicholson, Hope Gas 1 | Gas |
| Dennison, Hope Gas 1 | Gas |
| Core, Pgh. & W. Va. G. 1 | Gas |
| Cunningham, So. P. O. 2 | Gas |
| Burchnal hrs., So. P. O. 1 | Gas |
| Troy, Phila. Co. 1 | Gas |
| Hickman, Salem Gas 2 | Gas |
| Varner hrs., Carnegie Gas 1 | Gas |
| Jones, W. Va. T. 3 | Gas |
| Taylor hrs., Phila. Co. 1 | Gas |
| Smith hrs., Eastern Petroleum 1 | Gas |
| Wetzel and Tyler— | |
| Richmond, Carnegie Gas 1 | Gas |
| S. Teagarden, Mfrs. L. & H. 2 | Gas |
| Earnshaw, Mfrs. L. & H. 6 | Gas |
| Garder, Carnegie Gas 2 | Gas |
| Marshall County— | |
| Yoho, Mfrs. L. & H. 4 | Gas |
| Ritchie County— | |
| Darnold, I. O. G. & P. 2 | Gas |
| Westfall, Hope Gas 1 | Gas |
| Wass, Hope Gas 1 | Gas |
| Calhoun County— | |
| Ball, G. L. Cabot 3 | Gas |
| Pell, Hope Gas 1 | Gas |
| Deems, G. L. Cabot 1 | Gas |
| Propst, G. L. Cabot 3 | Gas |
| Kanawha County— | |
| Deel, O. F. O. 1 | Gas |
| Clay County— | |
| Samples, U. F. G. 1 | Gas |
| Samples, O. L. Davis 3 | Gas |
| Total | 42 |

## SOUTHEASTERN OHIO.

| | |
|---|---|
| Muskingum County— | |
| Magers, Fairfield O. & G. 1 | Gas |
| Smith, Chicago Oil 1 | Gas |
| Tuscarawas County— | |
| City lot, Home Gas 1 | Gas |
| Marietta— | |
| Kesselring, O. S. Reckard & Co. 1 | Gas |
| Columbiana County— | |
| Fryfogle, Fryfogle Bros 1 | Gas |
| Gaskill, Gaskill & Co. 1 | Gas |
| Belmont County— | |
| Stonebroker, N. G. of W. Va., 1 | Gas |
| Total | 7 |

## PENNSYLVANIA FIELDS.

### SUMMARY OF COMPLETED WORK.

| Field | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Allegany | 10 | 25 | 0 | 0 |
| Bradford | 30 | 94 | 0 | 2 |
| Middle Field | 9 | 14 | 0 | 0 |
| Venango-Clarion | 79 | 106 | 6 | 2 |
| Butler-Armstrong | 29 | 69 | 0 | 5 |
| S. W. Pennsylvania | 47 | 949 | 16 | 8 |
| West Virginia | 141 | 1,147 | 21 | 42 |
| Southeast Ohio | 106 | 955 | 31 | 7 |
| Total | 451 | 3,359 | 83 | 66 |

## CENTRAL OHIO.

### LICKING COUNTY.

| | |
|---|---|
| Licking—G. W. Irwin, Columbia, N. G. 3, 4 | Gas |

### ASHLAND COUNTY.

| | |
|---|---|
| Green—G. W. Burbaker, Ohio Fuel S. 2 | Gas |
| Adam Long, Ohio Fuel Sup. 2 | Gas |
| J. M. Biddinger, Logan G. & F. 1 | Gas |
| A. M. Guthrie, Logan G. & F. 1 | Gas |
| Total | 4 |

### MEDINA COUNTY.

| | |
|---|---|
| York—A. Vanboven, Ohio Fuel Sup. 1 | Gas |

[illegible] Starman, Medina Co. A [illegible] 1,000
[illegible] Martin, Medina Co. A [illegible] 1,000

Total 1

LORAIN COUNTY

[illegible] Barrance [illegible] City Store [illegible] 1,000

WAYNE COUNTY

[illegible] Emma Diehl Logan Co. A [illegible] 1,000
Mary Overhart Medina Co. A [illegible] 1,000
[illegible] S. D. Lahr Perkins Sec. [illegible] 1,000
[illegible] Plymouth Co. A [illegible] 1,000
[illegible] Plymouth Co. A [illegible] 1,000
[illegible] Plymouth Co. A [illegible] 1,000
[illegible] Armstrong Pemberton A [illegible] 1,000

Total

CUYAHOGA COUNTY

[illegible] Standard Heating Pipe Line 1,000
[illegible] Adams [illegible] 1,000
[illegible] Lear Logan Co. A [illegible] 1,000
[illegible] Mentel Brown River Dev. [illegible] 1,000
[illegible] Stuckey Medina Co. A [illegible] 1,000

Total

VINTON COUNTY

[illegible] Supply Co. [illegible] Sup. [illegible] 1,000
[illegible] Ohio Fuel Sup. [illegible] 1,000
[illegible] Ohio Fuel Sup. [illegible] 1,000
[illegible] Mentel Richardson A [illegible] 1,000
[illegible] Ohio Fuel Sup. [illegible] 1,000
[illegible] Gas Co. A [illegible] 1,000
[illegible] Ohio Fuel Sup. [illegible] 1,000

Total

HOCKING COUNTY

[illegible] 1,000

## CENTRAL OHIO FIELD

SUMMARY OF COMPLETED WORK

[illegible]

## LIMA FIELD

ALLEN COUNTY

[illegible]

## KENTUCKY TENNESSEE

ESTILL COUNTY

[illegible] 1,000

POWELL COUNTY

[illegible] 1,000

LINCOLN COUNTY

[illegible] 1,000

## KANSAS

MONTGOMERY COUNTY

[illegible] 1,000
[illegible] 1,000

Total
Production

BUTLER COUNTY

[illegible]
[illegible] 1,000
[illegible] 1,000
[illegible] 1,000

Total
Production

CHAUTAUQUA COUNTY

[illegible] 1,000

Production

FRANKLIN COUNTY

[illegible] 1,000

Production

## OKLAHOMA

WASHINGTON COUNTY

[illegible] 1,000
[illegible] 1,000

Total
Production

BIRD CREEK VERA

[illegible] 1,000

Production

OSAGE DISTRICT

[illegible] 1,000

Production

CLEVELAND PAWNEE COUNTY BARNSDALL

[illegible] 1,000

CUSHING SHAMROCK

[illegible] 1,000
[illegible] 1,000

TULSA GLENN POOL WILEY BELLEVILLE

[illegible] 1,000
[illegible] 1,000
[illegible] 1,000
[illegible] 1,000
[illegible] 1,000

Total

OKMULGEE MUSKOGEE

[illegible] 1,000

Production

BALD HILL BOOKE SAND

[illegible] 1,000
[illegible] 1,000
[illegible] 1,000

28-14-13, Speed, Black et al. 3..... Gas
21-14-14, Grayson, United Prod. 2..... Gas

Total ..... 5
Production ..... 24,000,000

WAGONER, MUSKOGEE, ROGERS COUNTY.

19-15-16, I. Russell 1..... Gas

Production ..... 3,000,000

KAY COUNTY.

32-29-1, E. Hoover, Jones & Buell 2..... Gas

Production ..... 15,000,000

HEALDTON POOL, CARTER COUNTY.

15-4-3, Coffee, Magnolia Pet. 19..... Gas

Production ..... 1,000,000

## KANSAS.

SUMMARY OF COMPLETED WORK.

| Field | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Montgomery | 30 | 523 | 10 | 1 |
| Butler | 75 | 14,870 | 3 | 3 |
| Chautauqua | 16 | 323 | 5 | 1 |
| Wilson | 10 | 80 | 2 | 0 |
| Neosho | 19 | 150 | 4 | 0 |
| Allen | 13 | 140 | 0 | 0 |
| Franklin | 6 | 180 | 1 | 1 |
| Miami | 10 | 102 | 4 | 0 |
| Wildcats | 18 | 320 | 7 | 0 |
| Total | 197 | 16,688 | 36 | 6 |

## OKLAHOMA.

SUMMARY OF COMPLETED WORK.

| Field | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Cherokee, d. s. | 39 | 630 | 2 | 1 |
| Cherokee, s. s. | 55 | 1,507 | 5 | 1 |
| Osage | 33 | 6,515 | 2 | 4 |
| Cleveland | 4 | 240 | 0 | 1 |
| Cushing-Shamrock | 40 | 4,310 | 2 | 2 |
| Creek | 132 | 9,807 | 27 | 11 |
| Kay | 3 | 2,300 | 0 | 1 |
| Healdton | 34 | 2,740 | 3 | 1 |
| Wildcats | 4 | 184 | 1 | 0 |
| Total | 344 | 27,666 | 42 | 22 |

## MID-CONTINENT.

SUMMARY OF COMPLETED WORK.

| | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Oklahoma | 344 | 27,666 | 42 | 22 |
| Kansas | 197 | 16,688 | 36 | 6 |
| Arkansas | 3 | 0 | 2 | 1 |
| Total | 544 | 44,354 | 80 | 29 |

## TEXAS PANHANDLE.

WILDCATS.

Palo Pinto County—
D. A. Hess, Palmer, Owen & Wilson 1..... Gas

## NORTH LOUISIANA.

Caddo—
13-21-16, Rogers, Caddo Oil & Ref. 31..... Gas
De Soto—
32-13-11, Williams, Gulf Refining C-12..... Gas
Bossier—
21-16-11, Burke, Hodges Oil 1..... Gas
8-16-11, Kaufman, Producers Oil 1..... Gas
15-16-12, Hunter, Gulf Refining 2..... Gas
Miscellaneous—
-17-13, Deal, Producers Oil 2..... Gas
33-22- 5, Crescent Lumber, Morehouse O. & G. 1.. Gas

Total ..... 7

## NORTH LOUISIANA.

SUMMARY OF COMPLETED WORK.

| | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Caddo | 16 | 1,875 | 2 | 1 |
| De Soto | 5 | 2,040 | 1 | 1 |
| Red River | 3 | 85 | 2 | 0 |
| Bossier | 4 | 60 | 0 | 3 |
| Miscellaneous | 8 | 6 | 5 | 2 |
| Total | 36 | 4,066 | 10 | 7 |

## GULF COAST REGION.

GOOSE CREEK.

Jones, Republic Prod. 1..... Gas
Busch, Gulf Prod. 3..... Blowout
Gillette, Humble Oil 1..... Gas
Churchill, Gulf Prod. 7..... Blowout
Galliard, Gulf Prod. 5..... Gas

Blowouts and gassers..... 5

HUMBLE.

Mason, Producers Oil 182..... Gas

## GULF COAST.

SUMMARY OF COMPLETED WORK.

| Dist. | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Batson | 4 | 400 | 2 | 0 |
| Edgerly | 7 | 385 | 2 | 0 |
| Goose Creek | 30 | 43,800 | 4 | 5 |
| Humble | 29 | 5,475 | 10 | 1 |
| Jennings | 2 | 30 | 1 | 0 |
| Markham | 2 | 250 | 0 | 0 |
| Spindletop | 9 | 195 | 5 | 0 |
| Saratoga | 6 | 235 | 1 | 0 |
| Sour Lake | 28 | 12,295 | 6 | 0 |
| Vinton | 4 | 610 | 0 | 0 |
| Miscellaneous | 10 | 40 | 9 | 0 |
| Total | 131 | 63,715 | 40 | 6 |

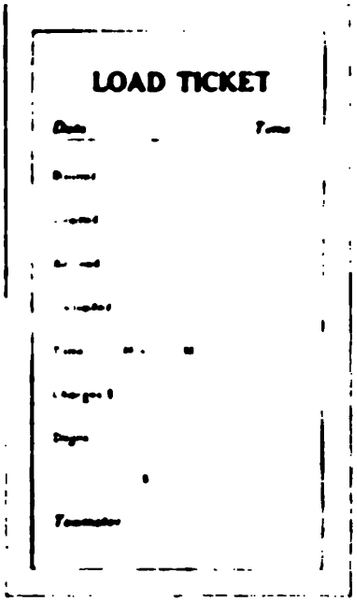
## TEXAS-LOUISIANA.

SUMMARY OF COMPLETED WORK.

| | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Texas Panhandle | 71 | 2,713 | 23 | 1 |
| North Louisiana | 36 | 4,066 | 10 | 7 |
| Gulf Coast | 131 | 63,715 | 40 | 6 |
| Total | 238 | 70,494 | 73 | 14 |

# Trucks Making or Losing Time

*The Automobile Made Productive of Economies  Avoiding Loss of Time, Means Cut in Costs*



of loads, and for scheduling roads and routes, to have a record on file constantly of where every truck is, so far as route and places of delivery are concerned, to estimate when a truck should return, and to know why it is not back on time, if such be the case. To know when the next truck will be available, to know in which direction it will be despatched, to know the vehicle best adapted to certain classes of deliveries and work, and to so plan as to utilize those best adapted and not to use a lighter or heavier truck than is necessary. To receive telephone messages from drivers of trucks in the event of trouble or need for special information. However, also to see that drivers are given full information before they start out with loads, to prevent telephoning, so far as possible. To see to it that the time useful in making deliveries, is not employed in repair work on the trucks.

In gas companies where both auto trucks and horse trucks are used, the same man can take care of the delivery system of both types.

The foregoing suggestions may easily be worked out greatly to the advantage of the gas company.

## PRACTICAL PATRIOTISM.

**Means Suggested By Adolph Mueller of the Mueller Manufacturing Company. Decatur, Ill.**

SOME months ago, at the McKinley banquet, during the meeting of the National Chamber of Commerce in Washington, Mr. Adolph Mueller, by request, addressed those gathered at the banquet on the subject of patriotic duty as applied to manufacturing plants in the United States.

The idea in Mr. Mueller's remarks was that each manufacturing plant in the United States should "do its bit" in making the preparedness idea a reality. Mr. Mueller at that time directed attention to the fact that it would necessarily be a lengthy matter in case war should develop, to meet the need for munitions of war, either through establishing new plants to turn them out, or to adapt plants already existing to this new sort of work, and to fit our needs.

Briefly, Mr. Mueller's idea and suggestion is that each factory in the country, no matter how small it may be, would include in the various processes it uses, one which will turn out some one thing needed in the equipment of an army or navy, and should have among its employes a unit of a few men who understand the work thoroughly.

In time of need this combined unit of knowledge and facilities would be capable of gradual but sure expansion until, with no internal disturbance, the whole plant would be turning out some one piece of equipment or part thereof.

"Suppose it be only the brass screw cap used in the shrapnel shell," said Mr. Mueller, "That is an essential part of the mechanism. A very small manufactory could become and could keep familiar with the processes necessary to turn this out, and the plant would be performing a patriotic duty similar to and more important than that of the young man who gives two weeks or a month of his valuable time to military duty in the field. The same idea could be applied to the plant which turns out clothing, or, in fact, any of the numerous things that would be absolutely essential to placing a large force in the field."

Mr. Mueller also advances the idea that it might be an excellent plan and a real economy in the end, for the federal government to pay for the initial cost of the installation of the needed machinery and, in the case of small plants, bear a share of other expenses.

Commercial patriotism was shown in two distinct ways by this, one of the largest enterprises in the United States manufacturing brass and other goods in the water and gas industries.

The company announced at the time men were called to the Mexican border that it would bind itself to pay the difference between the sum earned by a man as a soldier, and the sum earned as an employe, providing the wages paid the employe were not in excess of $15.00 per week. Thus an employe could enter the military service, knowing that his earning power would not fall below $15.00 per week during the year. Furthermore, that upon termination of military duty his old posiiton, or a similar one, would be open to him if he were found physically capable of taking the same upon his return.

Furthermore, each man was assured that he could enter the service, knowing that in case of death or disability his family would not immediately be deprived of the money he was earning. In addition to the foregoing the company made provision for men who would wish to enter military training camps.

The proposition made by the Mueller Company placed the institution where it might be called upon to pay as much as $28,860 to $30,000 per year in support of the plan. Five per cent. of the employes of the concern being free to enlist, meaning 37 to 40 men. The remaining evidence of commercial patriotism evinced is found in the fact that although the company was offered all sorts of inducements to manufacture munitions of war for foreign countries, it absolutely declined to do so at its plant in the United States, wholly for patriotic reasons, as it, for a like reason took on the manufacture of certain parts of necessary equipment for munitions production, at its plant in Canada, for the use of the country within the borders of which the Canadian factory of the Mueller Manufacturing Company is located.

It would seem that Mr. Adolph Mueller's plan for providing against a need of war munitions in the United States is an excellent one, and the Mueller attitude, both as to care of its men in service and its declining to produce munitions for foreign governments at its plant in the United States, is worthy of not only comment, but praise.

### SHELDON, OF CHICAGO, SAYS:

"Start—Stay—Finish—
That's the secret of Success.
To do this we need Endurance and Action!"

A good study and discussion for an employees' Club. These admonitions are ALIVE with possibilities.

# AROUND THE BELT

**New Wells, New Pipe Lines, New Contracts, Additions and Extensions. A Fund of Valuable News Collected for the Journal Through Many Sources**

## TRADE PERSONALS

[illegible] Publisher's Note

**FOR SALE** [illegible] Metal Stamping [illegible] Warren, Pa.

[illegible] Managing Engineer of the Associated Gas Engineers, has returned to New York after [illegible] the greater part of the winter. M. J. Lu[illegible] Managing Engineer of the Kansas-Missouri [illegible] Wyoming.

[illegible]

[illegible]

[illegible]

April 1 if the gas is needed for domestic consumers. Public school rates, which have been granted for several years to several communities, are discontinued.

**Sharon**

The United Natural Gas Company, which supplies Sharon, Farrell and other towns in this section, has advanced the price of gas 5 cents a thousand cubic feet. The former rate was 32 cents, with 2 per cent. discount if paid by the 10th of each month.

**WEST VIRGINIA—Charleston**

An application has been filed by the Natural Gas Company of West Virginia for permission to increase its rates from 27 cents per thousand to 32 cents.

## ITEMS OF FINANCE

**It will be noted that the companies mentioned under this head are all of them institutions drilling and distributing natural gas. Those wishing to obtain a knowledge concerning the important institutions in the artificial gas field are referred to THE GAS INDUSTRY magazine, published at 60 Pearl Street, Buffalo, N. Y., which devotes its columns exclusively to artificial gas matters. THE GAS INDUSTRY is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being specifically issued for its respective field, and each, therefore, rendering 100% efficiency in the industry it covers.—Publisher's Note.**

**KENTUCKY—Frankfort**

The Frankfort, Ky., Natural Gas Company has declared an initial dividend of one per cent. on its stock ($100 par), payable May 15th to stock of record April 30th. The company supplies Frankfort, Versailles and the Blue Grass estates of Kentucky with natural gas. The company is officered by Oil City men.

**NEW YORK—New York City**

The Wayland Oil & Gas Company has declared its regular semi-annual dividend of 3 per cent. on the preferred stock payable May 10 to stock of record May 1. Also a dividend of 2 per cent. on the common stock payable June 11 of record June 1.

**New York City**

The gross earnings of Cities Service Company for the twelve months ended March 31, 1917, $13,391,411, were the largest in the company's history, being more than two and one-half times as much as the figures for the preceding year. The balance for the common stock was $10,213,988, or three and one-half times as much as the balance for the common for the previous twelve months. For the twelve months ended March 31, 1917, the preferred dividend requirements were earned 4.67 times compared with 4.48 times for the twelve months ended February 28, 1917, and 2.74 times for the twelve months March 31, 1916. Likewise, 48.37% was earned on the common stock, compared with 44.81% and 18.78% respectively.

**OHIO—Columbus**

The Ohio Cities Gas Company has increased its quarterly dividend from 2½% to 6¼%. The dividend is payable June 1.

**PENNSYLVANIA—Pittsburgh**

The Maryland Oil & Gas Company has declared the regular semi-annual dividend of 2 per cent. on the preferred stock and a dividend of 2 per cent. on its common stock. The preferred is payable May 10 and the common dividend June 11.

## NEW FRANCHISES

**It will be noted that the franchises referred to below are those specifically granted natural gas companies. Those desiring to learn of artificial gas franchises granted should refer to THE GAS INDUSTRY magazine, published at 60 Pearl Street, Buffalo, N. Y., which devotes its columns entirely to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being exclusively issued for its respective field, and each rendering 100% efficiency in the industry it covers.—Publisher's Note.**

**CALIFORNIA—McKittrick**

Los Angeles interests have obtained a franchise in this city, and gas is to be brought from nearby oil and gas fields.

**LOUISIANA—New Orleans**

A project to pipe gas to this city for fuel heating from the Terre Bonne parish gas fields, 45 miles distant, has been launched here by W. B. McCormick of Shreveport, and his associates, J. H. Thatcher, J. B. Hutchinson and John Y. Snyder, representing Shreveport and Pittsburgh interests. A franchise will be asked from the city council. The McCormick interests now have one high-pressure gas well near Houma, which shows 1,200 pounds pressure to the square inch, and is estimated to have a capacity of 30,000,000 to 40,000,000 cubic feet of gas per day, which would be equivalent to 30 carloads of lump coal.

## ELECTED

**NEW YORK—Erin**

The stockholders in the Dewey Oil & Gas Company recently elected directors are as follows: Harry H. Hayes of Elmira, Ward Kinley of Horseheads, Otis Kinley of Breesport, Charles S. Dewey, Jay C. Becker, Joseph E. Rodbourn and Edward Trayner of Erin.

**OHIO—Dayton**

The Dayton Gas Company, at its annual meeting, elected the following officers: C. A. Ward, President; F. S. Heath, First Vice-President; George Light, Second Vice-President; Joseph Light, Secretary, and H. J. Hussong, Assistant Treasurer and Assistant Secretary. All directors were re-elected, as follows: F. S. Heath and E. G. Dawes, of Columbus; G. F. Goodnow, Chicago; C. B. Oglesby, Middletown; C. A. Ward, Geo. Light, R. R. Dickey, W. D. Graves, A. C. Dickey, G. H. Wood E. C. Harley and Henry Loy of Dayton.

# INCORPORATED

[illegible]

**KENTUCKY Newport**

[illegible]

**PENNSYLVANIA- McKeesport**

[illegible]

**McKees Rocks**

[illegible]

**WYOMING**

[illegible]

# GENERAL

[illegible]

**COLORADO – Denver**

[illegible]

**KANSAS—Elgin**

[illegible]

**Johnson**

[illegible]

**Sedan**

[illegible]

**Chanute**

[illegible]

**Butler**

[illegible]

**LOUISIANA—Bossier Parish**

[illegible]

**Bossier Parish**

[illegible]

**Shreveport**

[illegible]

**Shreveport**

[illegible]

**MONTANA – Butte**

[illegible]

mines and the smelters of western Montana, the natural gas companies of western Wyoming are taking under consideration the expending of more than $1,000,000 in the construction of a line from the Big Horn basin to Lovell, where it is proposed to establish experiment stations to determinte the worth of the gas.

**NEW YORK—Buffalo**

A joint petition has been filed with the Up-State Public Service Commission by the Iroquois Natural Gas Company and Charles B. Fuller for consent to the transfer by sale of a natural gas plant owned by Charles B. Fuller to the Iroquois Natural Gas Company.

**Corning**

A gas well was drilled near Corning recently and is said to be producing 1,000,000 feet daily.

**Farnham**

A fair gas well has been completed on the Carpenter farm, near Farnham.

**New York City**

The board of directors of Columbia Gas & Electric has been reduced from 25 to 15 members by the retirement of George P. Toby, J. A. Young, Andrew Squire, Charles E. Clark, William S. Cox, Louis J. Hauck, A. Y. Gowen and W. H. Schmidt.

**Sage**

A good flow of gas has been struck in a well on the Fay Smith farm.

**NORTH CAROLINA—Charlotte**

The National Transit Pump & Machine Company ha recently established a southeastern district office in this city.

**OHIO—Bucyrus**

A pumping station which will cost about $50,000 is planned in Ballas Township by the Medina Gas Company.

**Fairfield County**

In Walnut Township Emmitt Defenbaugh drilled in a fair gas well on the center of the A. Brooks lot, section 27, along Buckeye Lake.

**Huron County**

It is reported that oil and gas companies are going to make a searching test for oil and gas in Huron County. Agents of the Ohio Fuel and the Logan Gas Companies have been at work in the neighborhood of North Fairfield and Peru, and hundreds of acres are already under lease. The Lee Company of Wooster is also in the field for independent leasing and has altogether some 9,000 acres south of Norwalk under lease.

**Licking County**

In the Homer gas field, in Granville Township, the Heisey Gas Company drilled a fair gas well in its No. 2 on the northwest corner of the Sue Hartman farm. In Newark Township the Wehrle Stove Company is drilling a well on the northeast corner of its own property near Newark.

**Madison**

Ohio interests, it is understood, have leased about 60,000 acres of farm land in this county. The Madison County towns in which it is proposed to prospect include Sullivan, Lenox, Cazenovia, Nelson, Deruyter and Georgetown. Under the terms of the leases the land owner will receive $100 a year for each producing well, gas for his own use up to 100,000 cubic feet a year and one-eighth of all the oil that is produced. In any instance in which operations are not carried on the company agrees to pay 25 cents an acre land rental after two years. Most of the leases run for twenty years.

**Marion County**

Ninety-five leases on Marion County lands have been recently filed by the Logan Gas & Oil Company of Columbus, representing nearly 10,000 acres of land. This company now has 110 leases in Marion County.

**Perry County**

In Pleasant Township the Moxahala Oil & Gas Company has a light gasser on the Bannon Wallace land.

**OKLAHOMA—Bixby**

The Petrol Oil Company (Uter) has a 12,000,000-foot gas well located about two locations north of the southeast corner of the northwest of 32-17-13.

**Cushing**

The Iron Mountain Oil Company's No. 12 on the Mitchell farm in section 34-17-7, is reported to be making 12,000,000 cubic feet of gas at a depth of 2,907 feet.

**El Reno**

The El Reno Company has also completed the installa- contract to the E. Reno Gas & Electric Company for natural gas supply to be used under a boiler of 124 h. p.

The El Reno Company has also completed the installation of natural gas at the shops of the Rock Island Pacific shops.

**Enid**

The Enid Gas & Electric Company has under way plans for the extension of its lines.

**Healdton**

According to reports from the Loco district the Lone Star Gas Company is said to be making several hundred million feet per day. The well at a total depth of 840 feet has three good gas sands. The company holds extensive leases in the vicinity of its new strike.

**Hominy**

The Sinclair-Gulf Oil Company, in section 9-23-8, near Hominy, has a very large gasser in the Bartlesville sand. at a depth of 2,178 feet.

**Walters**

The $100,000 company organized here last fall to exploit for gas in the hope of finding a new source of fuel supply will start drilling shortly near Walters, where a 20,000,000 cubic foot gas well was recently brought in. The local company has leased a 960-acre tract near Walters. Two wells are being drilled by the company in this county.

**PENNSYLVANIA—Ardara**

The Greensboro Gas Company has a well with an estimated capacity of [illegible] cubic feet on the Harkness farm.

**Greene County**

In Rich Hill Township the South Penn Oil Company has drilled a test on the Emma McCracken farm through the gas sand and developed a good gasser.

**Hickory**

The National Transit Company gas station at Hickory was destroyed by fire of unknown origin. Besides much valuable machinery including gas engines, a large storage tank and gasoline stove it were destroyed. The loss is estimated at $12,000.

**Irwin**

A well of very large producing capacity has been completed here by the Greensboro Gas Company.

**Livermore**

It is reported that the McKee-Jones Gas Company will drill for gas near Livermore. The company has secured a large block of land between Livermore and the old Scrimaugh Church gas field.

**Reynoldsville**

Much leasing has been done on the Pentz tract near Rathmel where a good gasser was completed not long ago by the United Natural Gas Company.

**Rostraver**

A [illegible]-barrel gas well was completed on the Rostraver by the Braddock Gas Company on the N. F. Marsh farm.

**Waynesburg**

A gas well that is running from [illegible] cubic feet daily has been drilled [illegible] farm in Cumberland Township by the [illegible] Company. The rock was struck in the Big Injun sand and the well is one of the largest [illegible] Greene County.

**TENNESSEE—Glen Mary**

The Ohio Oil Company [illegible] near Glen Mary [illegible] cubic feet of gas [illegible] southeast of the producing [illegible].

**WASHINGTON—Benton**

[illegible] companies are now drilling [illegible] of the tests have [illegible].

**WEST VIRGINIA—Braxton County**

Salt Lick district [illegible] the Weston & Gauley Bridge Railroad from the Weston [illegible] test on the W. [illegible] farm [illegible] Natural Gas Company [illegible] all gassers [illegible].

**Braxton County**

[illegible] Brushy Creek district the [illegible] gauge [illegible] test on the [illegible] through the Gordon sand and developed a gasser. It is estimated capacity [illegible] cubic feet a day.

**Doddridge County**

In Grant District the Hope Natural Gas Company has completed tests on the H. P. Taylor and J. W. Ball farms. Both are gassers, the test on the Big Injun and the last on the Maxton sand.

In Greenbrier District W. Agnew & Co. have completed a test on the E. Robert farm. It is a light gasser in the Big Injun sand.

In Greenbrier District the Hope Natural Gas Company has tests on the P. P. Coast farm in a gasser in the Big Injun sand.

In the Big Flint District the Hope Natural Gas Company has a light gasser at the test on the Peter Carr farm.

In West Union District [illegible] cubic feet southeast of Salem the Pittsburgh & West Virginia Gas Company has a Big Injun gasser at [illegible] feet on the S. P. Hall farm.

**Harrison County**

[illegible] farm in Clay District the Hope Natural Gas Company has a test on the J. H. McDonald farm in a gasser in the Gantz sand.

On Lost Creek the Weston [illegible] the same company has tests on the W. and N. Edgell farms in a gasser in the Big Injun sand.

[illegible] Lost Creek the Weston [illegible] the same company has tests on the S. S. Stone farm in a light gasser [illegible].

**Kanawha County**

[illegible] and about one mile [illegible] on the South [illegible] farm in the Big Injun very good gassers [illegible] was started two years ago.

[illegible] Creek Development Company drilled the Reynolds [illegible] test on the H. H. Tower [illegible] Big Injun gasser in that [illegible] same extent the [illegible] and same [illegible] test on the H. P. Stuart [illegible].

[illegible] Creek Development Company tested the Reynolds [illegible] gasser on the S. [illegible].

**Lewis County**

[illegible] Weston & Gauley Bridge Railroad [illegible] Big Injun gasser [illegible] Mountain [illegible] gasser [illegible].

**Marion County**

[illegible] Hope Natural [illegible].

On Dents Run, Mannington district, the Blackshere Oil & Gas Company has drilled its test on the Ward Satterfield farm through the fifth sand. It is a small gasser in that formation.

**Marshall County**

On Bens Run, Liberty district, the Carnegie Natural Gas Company drilled a test on the Elizabeth Emery farm through the Big Injun. It is a very good gasser in that formation.

**Monongalia County**

On Miracle Run, Clay district, the South Penn Oil Company has drilled No. 7 on the Josephus Thomas farm through the Bayard sand. It is a small gas well.

On Jakes Run, Clay district, the Pittsburg & West Virginia Gas Company drilled No. 6 on the Daniel Moore farm into the Bayard sand and developed a strong gas pressure.

In Battelle district the Pittsburg & West Virginia Gas Company's test on the R. E. Eddy and D. C. Core 42 acres are both gassers, the first in the Bayard and the last in the gas sand.

**Ritchie County**

On the north fork of Hughes River the Imperial Oil & Gas Products Company drilled a test on the C. M. Darnell farm through the Big Injun sand. It is a gasser with a capacity of four million cubic feet a day.

On Leatherbark Run, Murphy district, the Hope Natural Gas Company's test on the J. C. Frederick farm is a fair gasser in the Big Injun sand.

The Imperial Oil & Gas Producing Company drilled a test on the C. M. Darnell farm, and it is a gasser with a capacity of four million cubic feet a day.

On the south fork of Hughes River, Murphy district, the Hope Natural Gas Company has completed a test on the J. M. Goff. It is a gasser, in the Big Injun.

At the headwaters of Hughes River, Clay district, the Pittsburgh & West Virginia Gas Company completed a test on the John Marsh farm and has a gasser.

**Roane County**

On Rock Creek, Harper district, the Sidney Oil & Gas Company has now drilled its test on the G. W. Walker farm through the salt sand. It is located 1,500 feet southwest of the same company's test on the E. J. Taylor farm. It is a gasser with a capacity of 1,000,000 cubic feet a day.

**ONTARIO—Dunnville**

The Amm Natural Gas & Gasoline Company, Limited, is taking an important part in the industrial additions that the war has brought to Canada. The company, incorporated about six months ago, has oil properties, having, it is stated, mineral rights to some 10,000 acres of oil lands in the vicinity of Dunnville. Two of its gas wells are reported to be producing 1,200,000 cubic feet every 24 hours. It is the plan of the company to install a $40,000 plant to extract gasoline from the gas, getting 3,000 gallons a day without reducing the salability of the gas, it is claimed. The company is capitalized at $2,000,000 and of this $200,000 is eight per cent. cumulative preferred. A portion of the latter is being offered at par to meet the cost of the gasoline plant.


NO. 14 OF A SERIES ON BUILDERS VENTURI IRON FOUNDRY METER FOR NATURAL GAS

*Six of the Seven Venturi Meter Type M Register-Indicator-Recorders at Blacksville, W. Va.*

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*Additional information given in Bulletin 86-B which will sent on request.*

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## JOURNAL

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## PUBLISHER'S NOTICE


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# MEMBERS OF ASSOCIATION OF NATURAL GAS SUPPLY MEN

# EXPLOITING MANUFACTURES.

THE illustrations of a number of leading exhibits shown at the Convention of the Natural Gas Association of America at Buffalo, are being published in the form of a portfolio, and will be found exceedingly attractive, not only, but as well valuable in identifying certain types of equipment as being made by certain of the representative manufacturing enterprises in this field.

The subscribers of the NATURAL GAS AND GASOLINE JOURNAL will receive copies of this portfolio which will be published as a supplement to the next succeeding number.

Copies of this portfolio will be at the booth of the NATURAL GAS AND GASOLINE JOURNAL at the convention of the West Virginia Gas Association, for distribution to foremen, district foremen, compressor station men, and others of importance to those manufacturing equipment and supplies.

We wish to commend the West Virginia Gas Association for its continuing the purpose to hold its convention and exhibition July 11th and 12th at Parkersburg, West Va., as did the Natural Gas Association of America its convention and exhibition in May, in the face of the fact that various other coventions in the artificial gas and other fields have been called off on account of war conditions.

A strong effort is being made by important men and organizations throughout the country to counteract this very unwise measure of hindering the flow of commercial business by stopping conventions and thereby causing lack of confidence and a feeling of commercial distrust. Again we commend these two important associations in the natural gas field of the United States.

Lucius S. Bigelow

# The Natural Gas Convention

***A Banner Meeting and an Unsurpassed Exhibition of Gas Equipment and Supplies Held in a Great Auditorium.***

THE Convention of the Natural Gas Association of America, scheduled for Buffalo the week of May 14th, was in no wise interfered with by the fact that war conditions exist.

While in some fields conventions for 1917 have been called off, that of the Natural Gas Association goes on record as following the desire of the national government in that commercial affairs shall proceed as though we were in time of peace, with simply reasonable restrictions. The Convention as was announced in advance it would be, found itself in ample quarters in one of the meeting rooms of the vast Auditorium in Buffalo, while the exhibition was held in the Auditorium proper.

In order that one may have a fair conception of the size of the building, we are reproducing a photograph that shows a section, though not the entire area. The convention-hall was entered from the end of the Auditorium in a stone section of the building, which will be observed as a background in the picture.

The delegates began arriving in goodly numbers on Monday morning, though some registered at the hotel on Saturday. The supply concerns were represented by the advance guard which came to install and erect the exhibits in booths prepared for them by the Supply Men's Association.

During Monday a large number of gas-men inspected the exhibits, the number being augmented by the arrival of many additional members on Tuesday, the opening day of the Convention.

As upon several former occasions, stand-up luncheons were served between the morning and afternoon sessions on three days, the tables being erected upon the floor

JOSEPH P. GUFFEY, President Natural Gas Association of America

H. G. HOSKINSON
President, Association of Natural Gas Supply Men and Resident Secretary Natural Gas Association of America

of exhibition-hall, to the left of the main entrance, as one entered from the street.

We shall not attempt to publish a list of the exhibitors, as such list has been published two or three times in months preceding the exhibition in the NATURAL GAS AND GASOLINE JOURNAL.

Three of the original members, or in other words, founders of the Association, were present upon this occasion, C. W. Sears, now of Ohio, though in the recent past of Los Angeles, Cal., and prior thereto, Manager of the gas company at Fort Worth, Texas; Mr. M. W. Walsh, now of the Louisville Gas & Electric Company, formerly of Oklahoma City, and Mr. C. L. Bullock, of Wichita, Kan., who at the time of the formation of the Association was at Joplin, Mo. Mr. Sears is standing, Mr. Bullock is to the left, Mr. Walsh in a gray suit.

It is but just that we should refer to the founders of the Association from time to time, "lest we forget." In this connection we wish to express regret at not having had with us Mr. M. M. Sweetman, of Kansas City, Mo., another of the founders, while we refer with deep sorrow to the death some time since of Mr. Kerr Murray Mitchell, of St. Joseph, Mo., which deprived us of the fifth member of the group to which we must all look with respect as those having been so farsighted as to bring this Association into existence.

Although for some time prior to the Convention in Buffalo, not alone, but in all of the northern sections, extremely cold and disagreeable weather had held back the springtime, when the exhibition opened on Monday, fair weather made the delegates glad, and but for a portion of one day the sun shone and the atmosphere was enjoyable.

At the election of officers, Mr. Joseph F. Guffey of Pittsburgh, was elected to succeed himself as President, with Kay C. Krick, of Columbus, Vice-President; Association Secretary, T. C. Jones, Delaware, Ohio; and Resident Secretary, David O. Holbrook, Pittsburgh, Pa. The following directors were elected: F. R. Hutchinson, of the Gas Appliance Company, Cleveland, O.; William McKee, of the Chaplin-Fulton Company, Pittsburgh; David O. Holbrook, Natural Gas Association, Pittsburgh; T. C. Clifford, Pittsburgh Meter Company, Pittsburgh; Larmour Adams, Metric Metal Works, Erie.

THOMAS C. JONES
Secretary, Natural Gas Association of America

LARMOUR ADAMS
Secretary, Association of Natural Gas Supply Men

Louisville, Ky., will be the meeting place of the Association in May, 1918.

It was desired by those who had charge of the Association's conduct, to express due patriotism, therefore the following resolution was offered and passed:

"Be it resolved, that the Natural Gas Association of America, representing the natural gas industry of the United States of America, unreservedly stands by the President in the present war crisis and pledges the cooperation and support of all its members to the govern-

ment to secure a successful termination of the war of democracy against autocracy."

A beefsteak dinner was held at the Auditorium one evening, a smoker at the Hotel Lafayette another evening, and a trip to Niagara Falls was enjoyed by the members on one of the afternoons.

Mr. A. C. Bedford, President of the Standard Oil Company of New Jersey, delivered a most interesting and inspiring address, which appears elsewhere in this magazine.

One of the most important papers presented before the convention was that entitled "Mixed Artificial and Natural Gas Distribution in Cities," by Mr. A. R. Macbeth. Unfortunately Mr. Macbeth could not be with us to present this paper, but it was read by another.

The time is rapidly approaching when it will become necessary, in fact the time is now here, when gas-men will have to consider this subject of mixing gases, a feature of the business that is going to become a necessity in order to supply the demand at times of shortage of natural gas, especially the peak load periods, and eventually as natural gas diminishes to a very large extent, to supplant it with artificial altogether.

In suggesting the foregoing we are not indicating that other companies not now in existence should supersede present companies, but that present institutions should now be considering best means at hand for gradually developing in a way to meet present, as well as future needs, and thus keep out competing institutions, by knowing how and having the equipment to take care of the business as these changes come about.

The other papers presented before the sessions were:

"Rates," by Leslie R. Denning, President Lone Star Gas Company, and General Counsel for the Ohio Fuel Supply Company.

"Efficiency in the Operation of Gas Compressing Stations," by T. R. Weymouth, Chief Engineer, United Natural Gas Company.

"The Effect of Publicity on Business Relations," by John W. Landey, Secretary Southwestern Gas & Electric Company, Chicago, Ill.

"Co-operation Between Buyer and Seller of Natural Gas Supplies," prepared by the Board of Directors of the Association of Natural Gas Supply Men, and read by Larcomer Adams, Secretary.

"Wrought Iron Pipe for Use in the Natural Gas Field," by James Ashton, Metallurgical Engineer, A. M. Byers Company.

THREE OF THE FOUNDERS OF THE NATURAL GAS ASSOCIATION.
Left to right: C. L. Bullock, C. W. Sears, M. W. Wash.

"Deep Well Drilling," by A. R. Gray, Assistant to General Superintendent People's Natural Gas Company, Pittsburgh, Pa.

President Guffey's address we print in full, also the address of Mr. Bedford, as before stated.

MEETING OF SUPPLY MEN.

The Supply Men's Association held their annual meeting during the period of the convention and discussed a number of subjects of importance to the members, among which was that of adhering strictly to the rule not to allow exhibits to be installed above a six-foot limit, measuring from the floor. This feature is not to be departed from excepting possibly in extreme cases where a piece of equipment may itself stand taller than six feet from the floor, etc.

Regarding the holding of the meeting in 1918, it was felt that this should not be waived, but that an exhibition at the least possible expenditure of money consistent with a proper showing of manufacured wares should be advocated.

An announcement of the officers for the ensuing year will be made after the Directors' meeting to be held subsequent to the convention in Buffalo.

The Supply Men's Association, having $2,000 available, voted to buy Liberty Bonds, thus to put that Association on record as desiring to set an example to its members that should reap a direct benefit to the government in this time of stress.

## ADVISORY TO COUNCIL OF NATIONAL DEFENSE.

The artificial and natural gas interests, and the electric lighting interests have combined in the forming of a committee advisory to the Advisory Committee of the Council of National Defense. The presidents of several of the associations and others form this committee. Among these is Mr. Joseph F. Guffey, as President of the Natural Gas Association of America, with Mr. Samuel S. Wyer, Gas Engineer, also a member of the Committee.

This Committee has opened offices in the Munsey Building, Washington, D. C., where the offices of the Council of National Defense are also located.

The function of the Committee is to act as a reference organization where the Council of National Defense seeks information regarding matters connected with these utilities. The offices of the Committee at Washington are in charge of Mr. George W. Elliott.

INTERIOR OF EXHIBITION HALL.

## PRESIDENT'S ADDRESS.

JOSEPH F. GUFFEY.

We are assembled today in our Twelfth Annual Convention to review the work of the year just completed, and, taking courage and inspiration from our past achievements, to plan as hopefully and wisely as may be for the future.

As I read over the addresses of many of my predecessors in this office, it gave me pleasure to find that most of the hopes and few of the fears therein expressed have been realized.

The past year has brought to us a fair measure of prosperity, though we were called upon to meet the greatest demand in our history and under the most adverse conditions.

We are entering upon a condition in the affairs of our nation more critical than has ever confronted any of those here present; and it behooves us to give careful and sane consideration to all our business problems. For years, the chief thought of every successful gas man has been along the lines of conservation; but until now, no concerted national effort has been made by which all the resources of this great country of ours will be brought to

facts for use before Public Service Commissions. The service feature, of which I have spoken, is sometimes lost sight of in rate cases before these authorities. It is an important consideration. The interest of the public in paying adequate rates is greater than that of the company in collecting them. A crippled company means crippled service. To be successful in the natural gas business (a company must have sufficient financial strength to enable it to make not only extensive explorations, but also extensions to its transportation system. Consumers will gladly pay much higher rates than those which now prevail if they can thereby prevent a natural gas shortage. A gas company's securities should be a safe and conservative investment. Such companies should not be allowed by Public Service Commissions to supply the public with gas at rates which are too low to produce earnings sufficient for the amortization of their capital, a fair dividend returned on their investment, and additional earnings to justify them for the extra hazard of the business. Public Service Commissions should stabilize the securities of public utilities.

We are deeply indebted and correspondingly grateful to the gentlemen who have so generously given their time and thought to the preparation of the papers to be presented to you during this Convention. We can easily applaud their reports, but we can show our appreciation of their work in no better way than by hearty participation in the discussions to follow, thus deriving the full benefit of their papers.

I wish it distinctly understood that all statements contained in this brief address represent my personal views alone and not the opinion of the Association. In this connection, I am going to suggest that the Association itself at this meeting, in so far as it may be practicable, determine the scope desired for future work.

To have served this Association as its President is an honor and a privilege, by me highly appreciated. My year is at its close. It has been a year full of activity and full of promise. For the many courtesies and the cordial cooperation which I have received at the hands of the officers and members of the Association, I am deeply grateful, and, for the new acquaintances and warm friendships made, I am the richer.

In conclusion, let me assure you that when I turn over to my successor the gavel of authority, I shall do so, feeling not only that this Association, by valuable service rendered, has earned the right to our earnest support, but also that it can and will, by its increasing helpfulness, be made an indispensable assistant to all men who follow the varying fortunes and fascinating uncertainties of the natural gas industry.

## EFFICIENCY IN THE OPERATION OF GAS COMPRESSING STATIONS.

BY THOMAS B. WEYMOUTH.

IN the early days of the natural gas business, when it became necessary to install compressing stations because of the decline in pressure of the producing field, the suddenness and magnitude of this pressure drop, coupled with the limited knowledge of the extent of the gas territory available, led to the general belief that therefore all equipment should be installed in a temporary fashion with the expenditure of as little money as possible. In spite of this belief, however, which should have indicated the necessity of installing apparatus permitting of the maximum of economy in operation, an examination of some of the old-time gas pumping stations and their methods of operation reveals a prodigality which, in the light of our modern notions of efficiency and conservation of resources, seems wholly inexcusable. The simple, non-condensing slide valve engine was used whereas the Corliss compound condensing engine was readily available, even if the gas engine was not at that early date thought to be in the state of development to warrant the confidence now reposed in it.

But it is in the method of operation that prevailed in some of the plants as installed where one can see an almost ludicrous waste. In one particular case a very large gas engine was installed to drive two compressor cylinders designed to compress two-stage in a single unit from atmospheric pressure to 300 pounds, the intermediate pressure to be about 60 pounds. It so happened that the pressure in the gas lines coming into the station from the field was about 125 pounds, and in order to meet the conditions for which the compressing outfit was designed, regulators were installed to reduce the field line pressure from 125 pounds to atmospheric, from which it was compressed to 60 pounds in the first stage of the machine and thence to 300 pounds in the second stage. This method of operation was pursued until the young engineer of the plant, unknown to the superintendent, connected a by-pass from the field lines into the suction line of the second stage compressor cylinder, short circuiting the regulators and permitting the gas to be compressed through a single stage from 125 pounds to 300 pounds, with a resultant fuel consumption less than half of that used originally, to say nothing of the saving in wear and tear on the machinery. It is interesting to note that when, some time later, the superintendent's secret agent duly reported the heresy of the engineer the latter was threatened with the loss of his position and ordered immediately to restore the former condition of operation.

Today, this practice is almost unknown, except in certain cases where it is necessary for short periods, to relieve the load temporarily on a unit that may be acting badly for one reason or another, but which cannot be shut down without crippling the service.

As an indication of the loss or waste occasioned by this practice, it may be noted that in throttling from 5 pounds gauge to atmosphere it requires 27 horsepower more to compress every million cubic feet of gas per day to 100 pounds gauge than it would if smaller compressors were installed or additional clearance were introduced into the existing compressor cylinders in order to reduce their capacity sufficiently to permit them to compress from the original 5 pounds suction pressure. This corresponds to an increase or useless consumption of fuel of 24 per cent. Thus, if this operation were carried on continuously for the whole year, the annual loss would be $473, based on 20 cent gas, which if capitalized at 10 per cent, would justify the expenditure of $4,730 for each million cubic

The discussion thus far has dealt with the effects of operating details upon the efficiency of compressing stations. It is impossible, however, to attain a high degree of efficiency of any plant unless it is properly designed. In the first place it is well to remember that the two heavy items of operating expense are fuel and labor, the size of the plant determining which of these will be the larger. It is desirable, therefore, that machinery be installed that will use fuel in the most economical manner, and that the plant be so designed as to require a minimum of operating labor consistent with proper upkeep and reliability of service. For the elimination of every $1,000 per year in labor cost it is economy to spend $8,000 in investment, and by judicious foresight many dollars can thus be saved. In one case in mind, a plant that originally required 24 men to operate was rearranged, with the result that seven men later ran it with the same number of engines in operation. This necessitated the scrapping of two 1,000 horse-power engines, but the results amply repaid the cost. This, of course, is an unusual case, but well illustrates the principle involved.

The desirability of keeping the engines in proper adjustment for the saving of fuel has already been discussed. There is a minimum fuel rate, however, below which it is impossible to go by any sort of care or adjustment, depending upon the type and make of prime mover installed. Inasmuch as the fuel rate usually amounts to from two to eight or ten percent of the gas pumped it is well to give careful attention to this matter in designing a plant. It is becoming of constantly increasing importance, not only from the standpoint of efficiency, but also because of the rapidly decreasing ratio of supply to demand for natural gas, with the consequent necessity for conserving the supply as far as possible for the use of consumers rather than in the process of transporting it to market.

Owing to the availability of gas for fuel in gas compressing stations, the adoption of large gas engine driven compressors has become quite general, with most satisfactory results, almost entirely displacing steam except in localities where coal is readily accessible at a cheap price. Where the use of a natural gas is imperative for this work, every possible effort should be made to so equip compressing stations as to save the maximum of gas.

One fruitful source of economy in this respect is to utilize the heat in the gas engine exhaust gases for various purposes about the plant. The extent of this waste heat may best be illustrated by an example. In the case of a 1,000 h. p. unit operating at full load with an economy of 10,000 B. t. u. per horse-power-hour, the heat carried away from the engine in the exhaust gases will be about 2,500 B. t. u. per h. p. at a temperature of about 1,000 degrees Fahrenheit. Of this heat, it is possible to recover about 20 percent, or 500 B. t. u. per horse-power—a total of 500,000 B. t. u. for the unit. This is equivalent to almost 20 per cent of the developed power of the engine, or 200 h. p.

The heat thus recovered may be utilized in various ways. It provides an excellent means of heating the station buildings and has been used by the author for this purpose for several years, thus eliminating the old heating boilers with their attendant danger and waste of fuel. This has been accomplished in two ways, the first of which was to carry the exhaust pipes through a closed conduit, permitting the fresh cold air to pass over them and thus become heated before entering the building. The second method, and the one now altogether used, consists in passing the exhaust gases through a specially designed hot water heater placed close to the engine, the water thus heated being allowed to circulate through direct radiators placed on the pump house floor.

Steam can be generated in this manner and utilized in various ways about the plant, such as in driving auxiliaries, additional gas compressors, or in absorption gasoline plants. The latter use is one of the most suitable, for the load variations of the gasoline plant follow closely those of the compressing station, thus producing a steady demand for the steam generated irrespective of seasons. If this method is pursued, the engine jacket water can be utilized in the steam generator, thus recovering a portion of the heat ordinarily lost at this point.

Another possible source of heat recovery lies in utilizing the heat developed by the compression of the gas. This is especially applicable to small plants, as in the case of one built by the author, wherein the hot compressed gas is made to pass through a battery of two inch pipes in multiple, arranged vertically around the walls of the building. A by-pass was provided by means of which in warm weather these pipes are shunted, and, instead of going through them, the gas passes direct to a cooler before entering the main lines. This heating arrangement must be designed with sufficient cross sectional area in order not to introduce an excessive pressure drop, a precaution the importance of which has already been discussed.

In steam operated plants, whether using gas or coal for fuel, there is abundant opportunity for increasing the efficiency by the installation of heat saving devices. In one actual case, the addition of a few coils in the uptake of a number of return tubular boilers so that the feed water had to pass through them to the boiler, resulted in an increase of 12 degrees in the feed temperature and a fuel saving of one per cent or 10,000 cubic feet of gas per day, amounting to $400 for the year. The actual cost of the work did not exceed $200. The wisdom of the investment is self-evident.

Attention has already been called to the waste of power resulting from throttling the suction gas before entering the compressors. The same remarks apply with equal force whether this throttling effect is produced by cramping a gate, using a regulator, or installing lines so small as to produce an equal pressure drop. Consequently it is necessary to so design the piping system that a proper balance will be struck between the cost of increasing pipe size and the power saved thereby through reduction in pressure drop. The importance of this applies to discharge lines as well as to suction lines, but not in the same degree.

In compressor station design and operation reliability of service should be the first consideration. For this reason machinery of ample power should be installed. Having done this, the next thought should

DISCUSSION

that are inherent in gas compressing stations. All of these are in addition to the questions to be dealt with in the ordinary power plant.

It is quite evident that the design and construction of a gas compressing plant is not a problem that should be left to a machinery agent or power plant engineer. But in order to obtain real efficiency, which includes reasonable first cost, reliable service and economical operation, we should be governed by the advice and judgment of the practical natural gas engineer. (Applause.)

JOHN GLASS (Chief Engineer, Carnegie Natural Gas Company, Waynesburg, Pennsylvania): For twenty years it has been my lot to build and operate gas compressing stations, and during all that time efficiency has been kept well in mind.

We built one 19 years ago, which is giving us excellent service today. Il all of this time the station has only been out of commission 35 minutes, which caused a shortage of gas to the consumer. This is reliability.

This plant consists of a cross-compound condensing engine with surface condesers. This plant has a fuel consumption of 20.5 cu. ft. of gas per horse power hour. It speaks pretty well of a plant built 19 years ago.

A great many here today will remember that at the Kansas City convention I referred to a series of tests of one of our plants consisting of two cross compound condensig Corliss enginens using superheated steam with which a horse power was developed on 13.36 cu. ft. of gas, and while this result was pleasing our greatest object was to obtain reliable operation, for we have to supply the steel mills with gas where any unexpected shut-down of the station, and the consequent shut-down of a mill or cooling of a furnace is to them a very serious matter.

It may also be of interest to the members of the Association to know that during the six years of practically continuous operation of this plant, our repair, maintenance and operating costs have been so satisfactory to us that we have deemed it advisable to install additional plants of this type. These additional installations, however, were not made without first carefully considering the cost of other types of stations.

In our last installation we have also arranged to use coal instead of gas for fuel whenever such change would increase the efficiency of our plant. In our various installations there are many minor economies that have been worked out with the co-operation of our station engineers, and while these may be of interest to the station crew I do not feel that these items are of enough importance to warrant taking up the time of this Association in their discussion.

About offering a prize to the operating force—I have always been opposed to this method of getting results. If we have a man that will not give us his best service after being educated to our requirements, we look for another to take his place.

We started to build a gas compressing plant a year ago, which will be ready for operation in thirty days. We built to use coal as fuel, installing stokers and other appliances, but before we had gone very far with the construction coal advanced so in price, and you all know we have plenty of time to get the price of gas up, so it means to burn cheap gas until the price of coal drops. (Applause.)

L. C. FROHRIEB (Secretary Federal Engineering Company, Pittsburgh): I do not think that the pioneers in gas compressing should be criticized too severely by Mr. Weymouth for installing simple slide valve engines at a time when it was customary to waste gas on every hand in enormous quantities as by burning flambeaus night and day, blowing wells continually in the air to astonish people by their roar, even setting fire to them for show purposes, selling gas on a contract basis per year at ridiculously low prices, regulating city pressure by wasting the surplus gas instead of shutting in the wells and numberless similar wasteful practices. Under these circumstances they should be commended for not wasting money as well as gas. Later, however, as early as 1896, the installation of cross-compound condensing Corliss engines for compressors became good practice.

Referring to Mr. Weymouth's idea that the chief interest of gas company directors is the fuel cost per unit of gas pumped, I find myself unable to believe that this is their attitude, as I have known many directors whose chief interest was the excessive repair cost of station machinery. Those directors who have the interest of their company at heart are chiefly concerned with the total cost of pumping gas, and this includes interest and depreciation on original investment, operating costs, repairs and maintenance, loss due to shut-dows as well as fuel costs.

I do not entirely approve of Mr. Weymouth's arrangement for utilizing the exhaust from his gas engine for heating purposes, unless he has an emergency boiler and steam heating system available, for in case of a breakdown or shut down the station will become cold and danger of a freeze-up would exist on account of the water in the jackets and piping in the station, but the greatest danger would be while making repairs the operators would be tempted to use a gas fire to keep themselves warm enough to work if no other method of heating were available besides exhaust gases for heating. His proposed method of heating the station with the hot compressed discharge is so unsafe and at variance with good practice that it should not be used; instead of piping it around inside the station it should be piped outside as quickly as possible with a minimum number of fittings and joints. I do not see why Mr. Weymouth distinguishes between largfier and smaller stations for this method of station heating unless he feels that when the probable trouble with it occurs he can spare the small station better than he could a large one.

The idea, however, of utilizing the waste heat of the boiler flue gases is an excellent one and is one of the many heat-saving devices that have been adopted and that have been the means of bringing the modern steam plant up to its present high efficiency.

Mr. Leland's reference to station efficiency being affected by faulty compressor valves reminds me of two stations which were out of commission practically all one winter on account of the failure of the compressor valves originally installed.

In designing gas compressing stations with the purpose of obtaining and maintaining efficient operation it must be borne in mind that the operating conditions are widely differeffnt from those occurring in the ordinary power plant where the necessity of taking care of a peak load

...duration gives a reserve unit available each day ... offers a regular opportunity for a shut-down for ... repairs and turning up; while in the case of a gas ... engine station it may be absolutely necessary for all ... units to run steadily 24 hours a day for weeks ... at a time. (Applause.)

MR. WILLMOTH: There were one or two points ... that lead me to rise and add a few words ... reference to Mr. Leland's statement that it is not ... safe to compare the stations on a horse power ... basis. I did not mean to make it in the paper that ... different characters or even stations of dif... the same character should always be ... with each other. What I wish to bring out is ... that the figures furnish a more equitable basis ... for ... stations from ... comparison be... stations of ... and similar size. In ... it is ... equitable to com... the output ... stating that one of the ... has ... than upon the basis of the ... gas pumped.

... Mr. Leland's suggestion as ... arrangement of ... the different stations by ... That is a matter which we have followed out ... years but which I neglected to mention in the ... However, it is a most excellent idea and I concede ... what Mr. Leland has said on this subject. Mr. ... also right in saying that each of the final stations ... long-range gas ... on their own feet so to ... That is ... which can be treated by ... general rule can be laid down for the design ... the ... stations.

... glad to have Mr. Leland's figures with reference ... the ... stations for ... gas engine ...

... with regard to the ... that we have found that ... work ... have ... that ... the ... gas ... these ...

... reference to Mr. Leland's ... suggested in the paper that ... and ... weighted ... even ... with ... having ... the ... agreed ... the ... available ... will ... that ... the ... the ... the

ties, the one having just held its meeting, the other purposing to hold its so-termed special meeting in New York.

The way to get at a situation, is to have all feel perfectly free to express their opinions, the reverse of this being to throttle democracy and the freedom of speech, two fundamentals necessary to maintaining a government such as our own, and associations such as we are proud of in our gas field.

Since freedom of speech is recognized as an American institution, we frankly contend that in our opinion our National Commercial Gas-Association could well continue its plan to hold its annual convention in 1917 as originally purposed, limiting the matter only in so far as expensive entertaining and needless social functions are concerned.

Since all of the exhibition space had been sold for the next November's convention in Detroit, and every allotment had been paid for in cash before the proposition to omit the 1917 convention was considered, and since many hotel room reservations had also been made, ere the matter came before the directors for discussion, we hope that these features will remain in status quo with the hope that the matter of the Detroit meeting may, after all, be brought to fruition.

To arrive at a conclusion from the viewpoint of the banker, we took occasion to lay the general subject of omitting commercial conventions on account of war conditions, before some of the leading bank presidents in the country. In New York City and elsewhere universally the statements made by these heads of vast financial institutions was that unfortunate results are most likely to occur from omitting these commercial functions, thereby increasing the tendency to distrust the stability of affairs in general, to shut off the demand and possibly eventually to create a panic.

It is well to be careful in our expenditures, and it is well to be conservative to a certain extent in what we do commercially, but we believe that the federal government was right when it stated that commercial activities should proceed along normal lines.

We hope that the attitude of those managing the National Commercial Gas-Association will find it possible to see their way clear to bring about the convention and commercial exhibit much as originally planned, during 1917.

This article should not be considered as criticizing what the Association's administration believes to be right. It is not that, but it is published to indicate how the matter is viewed not simply by one individual, but by many with whom we have conversed. We believe the association could hold a most admirable convention this year providing the directors will give the gas-men an opportunity to attend, and we hope such may come about before the windup of the year 1917.

## NATURAL GAS ASSOCIATION COMMENDED.

WE have upon several occasions since the Natural Gas Convention in Buffalo, listened to words of commendation for the Natural Gas Association of America on account of its having after careful consideration decided to hold its 1917 convention rather than to drop it from the calendar, which, by the way, could easily have been done had the directorate felt it advisable, as the matter was discussed some time prior to the convention period in May.

In our desire to learn what other Associations will do, we communicated with the President of the Pacific Coast Gas Association, who in reply indicates in the following letter that his Association feels strongly, as do we, and as we are glad to recount does also the Natural Gas Association of America, that commercial conventions should be held though we are at war; of course with the purpose to practice such economies as may be possible in connection with calling off banquets, and other expensive functions, or replacing the ordinary, expensive pleasure-matter with something more simple.

We trust that other associations in the United States, that are strictly business associations will feel the importance of continuing the plans of meeting as heretofore, and we might add, that the best two gas conventions held by the Canadian Gas Association during the period of its existence, have been the two held in Canada since that country entered upon the war. We mention this fact again, although something to the same effect was stated in another article appearing in this same issue, for such facts cannot be made too emphatic.

The president of the Pacific Coast Gas Association says:

PACIFIC COAST GAS ASSOCIATION.

May 31st, 1917.

L. S. Bigelow, President-Editor,
Periodicals Publishing Co.,
Buffalo, N. Y.

Dear Mr. Bigelow,—

Your letter of May 25th received, and we are pleased to inform you that this Association is determined to hold its regular Annual Meeting as it has for the past twenty-four years.

We fully appreciate the seriousness of this World-War condition, and the entrance of this country as a participant, but we feel that it would be most unwise to at this time, particularly, not hold our annual meeting.

We had our regular Get-together Dinner in San Francisco on April 5th, and it was a great success, about one hundred being in attendance.

We are holding our second Get-together Dinner in Los Angeles on the 9th of June, and we expect to have an exceptionally large attendance.

In conclusion, I cannot help but express myself to the effect that business should continue in the even tenor of its way in so far as possible, for commercial activities must not be stopped.

Very truly yours, C. B. Babcock, President.

# War and Its Materials

***A Clover Address by A. C. Bedford on War Conditions and the Relation of These to Oil and Gas Production.***

[illegible] the Natural Gas Association of America presented with the plaque [illegible] at the place named for the meeting. [illegible] Northern of the Association with a [illegible] arrived at by [illegible] leaders of natural gas companies of the United States and Canada and [illegible] the Association meeting [illegible] the Secretary of the federal government [illegible] President Wilson when indicating that [illegible] prevent after a normal [illegible]

Among the prominent gas men [illegible] was the President of the Standard Oil Company of New Jersey Mr. A. C. Bedford, a man who represents natural gas many and one of a group of men [illegible] natural conditions.

We might say that Mr. Bedford [illegible] the large interest of the Standard Oil Company [illegible] President of the Hope Natural Gas Company of Pittsburgh and addressing the Association Mr. Bedford [illegible] great upon the subject [illegible] with extreme pleasure that we are enabled to present Mr. Bedford's address to the interest of our readers in the [illegible] which would do well to read it in order [illegible] was received with [illegible] to elsewhere but [illegible] address was as follows [illegible]

### Mr. Bedford's Address

I [illegible] somewhat [illegible] today [illegible] am proud to be a [illegible] the limitations [illegible] and I will [illegible] and address [illegible] speaking at all must be [illegible] the atmosphere [illegible] these last few years [illegible] upon me [illegible] which as a country we are [illegible] all of [illegible] are we as here [illegible] uttered [illegible] message [illegible] applause [illegible] great applause [illegible] the [illegible] Modern warfare [illegible] armies in the field even as late as the Spanish war we heard much [illegible] behind the gun. The man is still important, but the vital, the all-inclusive factor, now is the machine behind the man.

It is said that at the outbreak of the war in Europe [illegible] Russia only 40 cartridges available for each soldier. It is reported that whole armies would entrain for the front with only one rifle for every five men. This was the kind of mobilization which Germany considered such a menace that she plunged the world into the most frightful of all human catastrophes. This Russian mobilization was in truth a mobilization of her men; it was not a mobilization of the machines behind her men.

Someone has said that in essence men are not today fighting Englishmen or Frenchmen but that German machines are fighting English and French machines. Men group themselves around some terrific engine hidden from sight. Into the enemies that engine is fired with explosive and hurled miles away against an invisible object supposed to be located at a certain place. There is no machine [illegible] into action behind imposing leaders [illegible] playing martial music little more indeed than a terrific irresistible collision of machines.

### Machines Protecting Men

While [illegible] important and the power of men [illegible] endure this onslaught upon civilization [illegible] eventually terminate the issue of the struggle [illegible] that the supreme problem is the machine behind the man. This means the mobilization of the [illegible] power [illegible]

[illegible] must be turned out [illegible] to the workers in the [illegible] the workers of the country. The coal and [illegible] the engine, the oil and the motor cars [illegible] are but the most important items [illegible] warfare [illegible] of whose peoples are [illegible] and annihilating the [illegible] another group of peoples and [illegible]

[illegible] a war between the two [illegible] the preparedness of the [illegible] the [illegible] effective [illegible] the essential material for [illegible] that these nations [illegible] that the struggle has taken on a [illegible] after which the [illegible] [illegible] that the weight of [illegible] [illegible] results [illegible]

ing effect upon the domestic as well as the international relations of every nation in the world.

The outbreak of the war found Germany alone of all the nations prepared for what was about to occur. Her machines were ready and she had become the most efficient nation in the world. Other countries have had to learn during the war and out of its terrible experience what Germany had foreseen.

The experience of England in meeting the problems thus thrown upon her are most interesting to us because her economic life had been ordered more nearly upon the pattern of our own. England was taken almost completely unawares and she had to act quickly. We have now had time to consider England's experiences and we ought therefore to be able to avoid some of these. England had to take steps which are destined to have a radical and far-reaching effect upon her future history.

It would be impossible to go into the details of all England has done in mobilizing her industry for war. But let us see if we can get at the fundamental principles which have seemed to guide her main policies. If I may describe those policies in a phrase, it is in the statement that England has operated through an extraordinary development of government activity, a line of policy which the United States has so far effectively sought to avoid.

### American Methods.

For example: Railroad service is of course vital to any mobilization, either of men or industries. One of the very first acts of England at the beginning of the war was accordingly to take over into the government's hands entire responsibility for the management and conduct of the railroads. The English government set up a committee of high railroad officers to carry on the work, but the government itself assumed responsibility for the finances of the companies, merely guaranteeing to each a continuance of the same net earnings which it had been receiving just prior to the war. The result has doubtless enabled the railroads to render a greatly increased service, but it has probably resulted in an enormously increased expense to the country.

Our government has proceeded upon a different theory; instead of taking over the railroads and assuming responsibility for them it has asked the railroads themselves to organize themselves into an effective transcontinental railroad system, abandoning for the moment individual and competitive activities and devoting themselves during the period of the war to rendering the utmost practical services for the benefit of not only the government, but of the public at large.

The essence of this plan is that the government tells the railroads what it wants and the railroads themselves assume responsibility for rendering service. This places the burden exactly where it ought to belong and places a premium upon the railroad efficiency and economy instead of encouraging that wastefulness which would be inevitable if the government merely guaranteed minimum net earnings as was done in England.

And right here the question may very properly be raised if under the stress of war acting under government supervision and regulation, the railroads can in cooperation and with competition completely eliminated, give to the government and the public a greatly improved service, is it conceivable that after the war the railroads should be forced to continue the wastes and losses due to the unnecessary competition practically forced by law prior to the war? England sometime after the war began looked over her coal mines and placed them under government operation. She is now taking over her shipping companies. She has also absorbed under governmen, management and control a large number of industries and munition plants.

Our country has proceeded quite differently in all such details. The President of the United States created an advistory committee of the Council of National Defense. The aim of that committee was to study the industrial resources of the country with a view of mobilizing each of them for the benefit of the government in the event of war.

In the great industries such as steel, coal, oil, copper, and so on, the Council of National Defense invited leading producers to become a member of sub-committees and to co-operate with the government in securing adequate supplies at fair prices. The plan has up to the present succeeded admirably, and will, I believe, continue to prove itself of great service to the nation.

I wish at this time to pay special tribute to Messrs. Baruch, Williard and Coffin, others of this council, who have personally done excellent service—giving their entire time and attention without compensation to the work of this committee.

Secretary Lane referred to the co-operative spirit already shown by the business of the country in this mobilization of the resources of the States. It would surprise the nations of Europe how intense is the spirit of loyalty on the part of our business men and capitalists. They are the very root and foundation of the great industry—the war industry—that presents itself on the other side of the water. Now there are two ways of dealing with a problem of this kind. One way is by the hearty co-operation of the mentality gauged in the industry. The other way is by compulsion. My experience in the Interstate Commerce Commission led me to believe that the larger men in the railroad industry had quite as much vision as I had, and if I could show them the importance of an occasion they would try to meet it. So instead of resorting to compulsion instead of taking over mines and great operating plants, we are endeavoring to put you men at your best. This war is a challenge to us.

### Natural Gas Industry.

Those are the words of Secretary Lane. How does that come down to us as men? It comes to my mind in two ways. It is patent that we are as interested in this as the coal men or the oil men or men engaged in other industries, because it is an important part of the great industries of the country is the gas industry today, and an important part is the production of natural gas. Natural gas is as important as petroleum and coal in the mobilization of the industries for war. You know the part it plays. I do not have to tell you. Secondly, it is a question of natural gas as a fuel. You all know without me telling you the conditions in reference to coal as a fuel. The coal committee is having great difficulty in

men from the land, the collieries or the factories and that leads me to say here that in my judgment producers of oil and gas where they need fuel for factory purposes should urge upon those men essential to the business that it is their business to remain at their posts. Such men as drillers and other experts to keep up the production, etc., when men are called upon to respond, as they are going to be called upon, only men should go who can be spared. Some men will be essential to the industry. In those industries you know those men who are most essential. A man can do his patriotic duty by drilling a well when oil and gas is needed as well as by bearing arms in the trenches.

### Development in England.

Nothing could more strikingly illustrate the essential nature of co-operation by all industries than the development of England's great industry of munitions. There are now nearly 100 great government plants which have been specially built to cope with the war requirements. Working directly under the ministry of munitions are 2,000,000 men and over 1,000,000 women. Women are engaged in more than 500 munition processes. The production of guns and munitions has multiplied six fold during the past year. At the beginning of the war there was a notable lack of shells. They did not understand how to go to work, they did not understand what it meant. Perhaps you will remember reading in the papers where the general of the French sent back to England to forward "Have shells of high explosive power," and they sent back word to him: "No, you don't want them, you want shrapnel." Then he sent back word that he had shrapnel, but it was gone and they sent back word to him that: "If you had not wasted your shrapnel, you would have had it now," not realizing what the conditions were, not realizing the tremendous obstacles in the ways of supplying munitions to the army and to the navy, not realizing the high explosives that were necessary to meet the modern engines which had been so highly developed by Germany. The British have moved back and forth across the channel over 8,000,000 men, over 10,000,000 tons of explosives, over 95,000,000 gallons of gasoline and over 1,000,000 sick and wounded, and all this without loss to the enemy. This is a marvelous achievement. (More applause.) With great reverence to the memory of the distinguished citizen who died in New York yesterday and for whom all New York City mourns today, I want to echo the words of Mr. Choate for us "to wake up, let us be up and doing not talking only."

England's original navy was 150,000. Her present navy exceeds half a million. In addition to naval requirements England is obliged to supply all her troops, all her armies in distant parts with their equipment for war and the necessities of life and in addition to keep her fleet busy with the transportation of coal and other essentials to her allies, notably France and Italy. This means an enormous sea force in addition to the regular naval forces, and the organization and control of this auxiliary navy is one of the great achievements of the war. Those things we too must do and though the war has been in effect for 30 months, we are much less prepared than England and have an enormous task to perform. Again I echo the recent words of Mr. Choate and say with him, "Wake up, let us be up and doing, and not talking only."

To the Allies, therefore, the entrance of these United States bring a stupendous relief. It sets the seal of absolute certainty upon their work. It ranged 100,000,000 people beside them, a help, daring, valour and efficiency second to none, great wealth and industrial organization of the first order. People ask, what can America do? (Great applause.) Rather ask what can America not do? If it is men, money, food, raw or finished material, we can supply them all, and we will. (More applause.)

As to the purpose. If you will bear with me a moment longer, I can do no better than to quote from that eloquent address made by the mayor of New York at that great dinner given on last Friday night, May 11, a dinner where perhaps never before such an array of notable men sat at the same table. There were two former Presidents of the United States, Colonel Roosevelt and Mr. Taft. (Applause.) There were a former premier of Great Britain, Mr. Balfour, and a former president of France, Monsieur Viviani, both of them leading figures in their respective countries. (Great applause.) There was also the marshal of France, General Joffre (long continued applause), and the senior officer of the United States army. There were the admirals of the British, French and United States navies, the British and French ambassadors, the governor of the Bank of England, the governor of the great State of New York and a thousand other men of distinguished personalities and famous records, representatives of the financial, literary, artistic, professional and business life of America, on behalf of whom the mayor addressed these distinguished guests in part as follows: "This is essentially our war. Democracy destroyed in Europe means democracy first threatened and then destroyed in the United States. At last we see it. America is now awake and New York—New York that has never hung back or faltered in the hour of the nation's peril—clasps hands with these, our guests and allies and says to them: "We are with you in this thing to the bitter end, lead where it may. Our hour of trial is here."

### Hour of Trial Near.

What can we say to them, their people have known the privations and the sufferings of war. We have not. Democracy on this side of the Atlantic is protected by the British navy, helped by the valiant French by the battle of the Marne, secured by the armies of the allies, for two years and a half has pursued its prosperous and peaceful course unshaken by the terrors and the sufferings that have torn Europe. That day is past. The hour of our trial is at hand. It was not to be that American democracy should thrive and live at peace while European democracy fought and suffered to preserve the world popular self government. American democracy must not make its sacrifice in the common cause of civilization and of justice and it is well for the soul and spirit of our nation that this is so.

Gentlemen of England and of France, our President speaking for every loyal citizen of the United States has pledged to you the resources of the United States. Money, ships, munitions, food, these things we give you freely

and esteem the giving but a light tax upon our unbounded wealth. It is not in itself enough, it lacks essential contribution of manhood, service and blood sacrifice. This too must be our duty. It will be done, our debt discharged, our destiny achieved only when the hosts of American democracy take their place beside the hosts of England and of France resolved to fight and fight and still to fight until victory relieves the world from autocracy and barbarism. (Long continued applause.)

But the country that will benefit most from America's intervention is America herself. Her entrance into the war will restore to the United States her old prestige and to Americans a nation of which all may once more be proud. It removes the disastrous misunderstanding of American motives and American character that had begun to obtain in Europe and South America and Mexico. It imposes upon the United States a gigantic task that will test to the uttermost the quality of her citizenship, the efficiency of her administration and of her industrial captains and the will power of her people. Let us therefore wage this war as though it were to last for another five years and our very existence as an independent state was involved and when history comes as come it will, we will be welcomed as an honored member of the family of nations who will ever be honored for all time as those who preserved to the world the principles of civilization, of truth and of honor, and who helped to defeat the attack upon civilization, by barbarism, a barbarism that combines the science of the laboratory with the savagery of the jungle, a barbarism that touches all those doctrines and principles which have been accepted after long years, as the proof of human progress and the glory of mankind's advance.

## MOTOR TRUCK SERVICE ON CROSS COUNTRY LINE.

IN laying a two-inch high pressure main near Santiago, the route was through rolling ground, making the work of pipe-laying a difficult one. Adobe is the type of soil, mixed with large and small stones and bowlders.

While this mixture was in a hard baked state, it was plowed by attaching a plow to a motor-truck beneath the axle, thereby holding the front of the plow down.

A shoe was arranged so that adjustment might be made by means of an extension reaching from the plow, forward under the truck. The adjustment regulated the depth of the furrow; thus the plowman had nothing to do with guiding the plow or dipping it to gain a proper depth. It was his business to ease up on the plow if the latter by virtue of the character of the soil was doing too deep any heavy work.

The plow used in this trench-work is described as a single point plow with a mould board, a similar plow to that used by railroad companies in breaking ground for their work.

The same truck that was used for plowing, becomes the means of conveying the pipe and couplings, where couplings are used, or the pipe, if not couplings, where the work is welded. Motor trucks have become not simply a convenience, but a necessity with various companies, and the use of trucks in field as well as in city work is growing decidedly in popularity.

## A PERTINENT STORY.

OUR friend, W. H. Sedberry, of the Marshall Gas Company, of Marshall, Texas, has sent us the following story, which is particularly á propos to the present state of affairs:

"An old negro from away out in the country came into The Sentinel office Saturday and seemed considerably bewildered. He had his hat in his hand and after shuffling around a little he propounded this question:

" 'Please, sir, Boss, will you tell de ole nigger what it means by havin' dese flags aflyin' ebberywhar?'

"He was told that the country was seriously threatened by war and that the people were showing their patriotic feeling by displaying the nation's flag. The old man seemed much perplexed and finally asked in a confidential tone:

" 'Is de Norf and de Souf goin' to fight agin?'

"He was told that the North and South were united and were to fight another nation. The old face brightened up and his eye sparkled as he said:

" 'You say de Norf and Souf have gone togedder and dat dey is goin' to fight anodder crowd: den all I've got to say is, Gawd help dat odder crowd, when bof of my white folks jump on 'em.' "

## DOES THIS APPLY TO YOU.

There are just as many in the gas-field as in any other field of work to which this very clever statement of R. F. Whitcomb applies. Does it apply to you?

Be a Hustler—Give me a hustler every time—one who is not afraid of work, who goes ahead and just plows right on without hesitating one moment.

Give me the fellow who wants to accomplish something, who says boldly, "I will do that," and then "does it."

If you lack forwardness in this way, start right now and DO it. You envy the man who accomplishes results, but did you ever stop to consider that the same possibility lies within your power? In your very hands? In your very head?

Once we get started we are all right, for we soon find out that the task is not as difficult as we at first supposed, and it is surprising to learn how much easier it becomes as we go onward.

Many of us need a push, and some an extra hard one.

*—R. F. Whitcomb, in Chat.*

# Petroleum and Gasoline

***Address on Situation Delivered by Van. H. Manning, Director of the U. S. Bureau of Mines Before Editorial Conference of Business Publishers Association, Washington, May 25, 1917.***

I AM very glad to have the honor to be permitted to share in the patriotic endeavors of the Business Publishers and to bring before you, and through your public agencies, to the country, one of the, at least to my mind, serious problems confronting the United States at this time. I refer to the production and consumption of petroleum and gasoline in the United States.

To us who have looked into the insides of this petroleum matter, the situation is serious, and it is my purpose here to give you a few of the essential facts and allow you to draw your own conclusions as to the remedies that ought to be applied. I shall transgress from this just for a moment to give you all the preliminary thought that, generally as a nation, when it comes to our heritage of splendid natural resources, we are wasteful, apathetic and forgetful. We waste our natural resources with the most shameful prodigality; we are apathetic of the future. It has been said that we waste our resources like a sailor spends his money on shore leave for the first time in a year, but from what I have seen of our national sin of waste I think we slander the sailor. I preface my remarks with the above because I wish to imprint the thought that any remedy that can be applied to the petroleum and gasoline situation will come through conservation, which does not mean tying up but a wiser use of what we have.

I suppose that you all are more interested in the motor-fuel or gasoline situation than in the general petroleum situation, no matter how much one depends upon the other, and I am inclined here to give you a few of the outstanding statistics which will show you the crux of the problem.

In the year 1916 there were two million, seven hundred and fifty thousand automobiles, or an increase over the year 1910 of two million, three hundred and fifty thousand.

The increased number of automobiles in 1916 used a billion more gallons of gasoline or 28,000,000 barrels more than the automobiles in 1910.

This increased use of gasoline for the increased number of automobiles alone represented a little more than half of the total output of gasoline in the country in 1916 for all purposes, the total production being about 54,000,000 barrels. And when you realize that the number of automobiles is increasing with each day, you can grasp what a tremendous problem is this feature alone.

The total gasoline engine horsepower built and sold in the United States in 1913, according to the Federal Trade Commission, was eleven million, two hundred thousand, and in 1915 the output had a little more than doubled, the figures being twenty-two million, five hundred thousand. Just think of it, an increase in gasoline horsepower of 100 per cent in two years' time.

These figures indicate the increased use of gasoline-power more clearly than those which cover only the automobiles, as these include all types of gasoline-driven machines which have developed and increased in use in a way no less surprising than that of the automobile itself.

The apparently unsolvable puzzle about this is that while we have been increasing our production of gasoline, the production of automobiles has increased 200 per cent above the increase in gasoline production. These are the facts that we must face. Where is it going to end?

Statistics indicate that of the gasoline produced in the United States, between 55 per cent and 60 per cent is used in the automobiles of the country; 20 per cent to 25 per cent is exported; and the balance is used in stationary engines, in motor boats, tractors and for various purposes of minor importance.

As the highways of the country are improved, the commercial trucks, consuming large quantities of motor fuel, are becoming important means of transportation in many localities. The fishing fleets of our entire coasts have installed gasoline power to replace their original sailing equipment. These fleets, with the many pleasure craft, operated mostly in the summer months, when the production of gasoline is most heavily taxed, use large quantities of this convenient liquid fuel. There seems no reason to believe that the call for gasolin will in any way be reduced, in fact, a much larger demand seems imminent.

As the production of gasoline depends upon our supply of petroleum, let us look to the source and see what we find. Petroleum and its products have become essential to our very existence. Gasoline is a very important product, but there are many others. The operation of hydro-electric generators, of railway and trolley cars, of the machinery of the factories, of internal-combustion engines, of our battleships and our merchant ships, in fact, of all machinery is made possible by the use of lubricating oils, and these come from petroleum. Petroleum lubri-

compression and refrigeration process of extracting gasoline from natural gas, when first used, treated only gases containing three gallons or more of condensable vapors, but at the present time the development of the process and the increased price of the product make gas carrying one gallon profitable. The extractio gasoline from gases containing less than one gallon and as small a quantity as one pint per 1,000 cubic feet is now being profitably carried on by the absorption process, which is well adapted to treating lean gases in large volumes. Another source of petroleum which will undoubtedly be developed in time is the shales containing considerable quantities of oil but which, at present prices of crude oil, cannot be extracted commercially.

Substitutes for gasoline, such as the products of the distillation of coal, are being used at present in Europe for motor fuels, and may in time be used for that purpose in this country, as many by-product coke ovens are now being constructed.

In the periods of readjustment and in the development of latent resources, I am hopeful that the Bureau of Mines will play an important part. At present, besides endeavoring to meet the problems of today, the bureau is looking ahead and preparing to aid in solving the problems of tomorrow by investigating the possibilities of increasing the present production.

## TEN PER CENT. RETURN.

### Do the Gas Men Agree With the Commission?

THE Utilities Commission in Ohio recently held that 10 per cent. was a fair return to a gas company. The Commission in Ohio took the ground that since there is a considerable hazard and uncertainty in the natural gas business, companies in that industry should be allowed to charge a rate that would yield them 10 per cent. on their investment.

This was a statement made by the Commission when it fixed a rate of 34 cents for the consumers to pay the Ashtabula Gas Company, Ashtabula, Ohio, and the Northeastern Oil & Gas Company at Geneva and Conneaut, Ohio.

This decision is of especial interest to Columbus because of the bearing it will have on the case pending before the Commission in which the Federal Gas & Fuel and the Columbus Gas companies seek to have knocked out the ordinance passed by the Columbus council requiring them to furnish gas at a 25-cent net rate. Under its policy, the commission will hold that the rate should be such as to enable these companies to earn 10 per cent. on their investments. The question of valuation of the properties of the two companies thus becomes the big issue in the controversy over what the rate should be.

The rate fight in Ashtabula, Geneva and Conneaut has been bitterly contested and has been on for several years. Originally, under old ordinances, which have expired, the rate was 30 cents. The companies raised the rates to 36 cents net. The municipalities involved passed ordinances keeping the rate at 30 cents net. The decision is a compromise, putting the rate at 34 cents with the right to make the "readiness to serve" charge of 20 cents a month for each customer.

In deciding that gas companies are entitled to a 10 per cent. return, the Commission, in part, said:

"The natural gas business differs materially from that of any other which is classed as a public utility. Its production is in the nature of a mining venture. It can be produced only in limited areas and when once discovered, it is only by continuous mining that the extent of the field can be ascertained and the supply maintained.

"Electricity may be produced anywhere that the machinery can be installed. Water may be found either on or below the surface, everywhere save in the desert. Telephonic communication and railway transportation may be indefinitely carried on anywhere, and all of these services may be perpetually furnished; but natural gas is limited to comparatively few localities and the life of the enterprise depends upon the uncertain supply of nature.

"Experience has taught that at best a field cannot last longer than two or three decades. Those who engage in the venture must get their money back within a few years or not at all, and those who enjoy the luxury must pay a sufficient sum to enable the producer to do so or capital will not be attracted to such ventures." The Commission then says that considering the hazard of the business, ten per cent. is a fair rate of return upon the investment.

## SURVEY ISSUES NEW OIL REPORT.

The application of geology to the search for new oil fields is so well known that the publication of official reports is awaited with great interest by those concerned in oil development.

On Saturday, February 24th, the Illinois State Geological Survey, in co-operation with the U. S. Geological Survey, issued Bulletin 35, which contains the results of all field examinations during 1916. The various reports describe the geological conditions with reference to petroleum in parts of Saline, Williamson, Pope, Johnson, Union, Jackson, Hardin and Marion counties. It contains also a summary of oil development in the State for 1916, including production statistics.

On the same date, Bulletin 33 was ready for distribution. It contains reports on mineral production for 1915 as well as miscellaneous oil papers based on investigations made during 1915. Parts of this bulletin were published as an extract early in 1916. The new portions describe in detail the conditions that control accumulation in the main fields of Lawrence and Crawford counties.

Distribution will be made by mail only. Anyone desiring these publications should send postage at the 1 pound rate for Bulletin 33. Both will be sent at the rate for 3 pounds. All letters should be addressed to the Director, State Geological Survey, Urbana, Illinois.

## WILL YOUR GAS YIELD GASOLINE?

### A Very Important Question to be Settled Before Investing in a Gasoline Plant.

BY H. A. FISHER

THE old adage that the first thing to do when one wants to prepare a rabbit dinner is to get the rabbit, applies most emphatically to the gasoline business; only it needs an addition. First *find* the rabbit, *then* catch it.

The great question in gasoline recovery from natural gas is to be sure it is a rabbit. Of course the means to be certain that the gas will really yield gasoline when treated by the usual processes.

Until recently this has been largely a matter of guessing. Fortunately the investigations and improvements made within the past two or three years enables us to answer this question definitely and correctly before any machinery is ordered.

It is necessary to test for—1st the *quantity* and 2d *quality* of the gas that the machinery ordered may be sure of treating it to the best advantage.

There are three methods used as follows:

1st. Sending samples of the gas to a laboratory to be analyzed.

2nd. Take a miniature gasoline plant to the lease and run some gas through it and actually make gasoline.

3rd. Take a portable laboratory fitted to make the chemical tests and analysis needed to learn the quality of the gas to the lease where it can be set up at some convenient place. Then make a thorough examination of each well on the lease measuring the open flow of the gas, get all the available data regarding the well, the sand it is producing it or gas or both, the quantity and quality of the water supply, nearness to railroad, etc., then make analysis of the gas of each well.

After a thorough examination of this kind by a competent engineer he can report fully to the owner just what can be done with this gas, the kind of machinery, and the amount of gasoline that can be extracted and other valuable data that will not only enable him to install suitable machinery but will secure the best results and save him much money in experimenting.

Space will not allow the giving of all the reasons for the above conclusions but a few facts learned by the writer in his own work in the field that are not generally known will illustrate in part the statements made.

The gas from wells adjoining each other varies in a most startling manner. It is not the exception to find that the gas from one well has a gasoline content from ½ of a gallon to 4 gallons per 1000 cubic feet, though the wells may be but a few feet apart and all from the same sand. In one instance the gas from one well a few feet apart as the same sand varied from [illegible] gallons per 1000 cubic feet.

As from the same well often varies under different conditions. The writer has had the gasoline content of the casing head gas from [illegible] gallons per 1000 cubic feet. Another well gave a large quantity of 4½ gallon gas. When the gases were properly separated it was found that there was considerable 4 gallon gas, some 3 gallon gas and the rest a 2½ gallon gas. The three gases could not be worked profitably together but by separating them a profitable gasoline per 1000 cubic feet was had. The gas was from three different sands. Together they could not be used to the usual profit. Separated there was a yield of four gallons of gasoline per day.

If space permitted instances could be given where well [illegible] gave the same. Then comes the advantage there is in a careful examination and study at the lease of each well it is intended to use in a gasoline plant.

By taking this precaution the gasoline business can be made one of the safest and most profitable investments in the oil business.

## ARE YOU ONE OF THEM?

It is said and truthfully that *Live men are just as useless as dead ones and take up more room.*

If you are still alive let people know it. Accomplish what is possible. Don't let the world look upon you as "a dead one." Don't take up the room of some one who wants to be active. Be a producer. Either get out and give the other fellow a chance or go to it yourself. On the side we might say this applies in some instances to concerns that don't advertise. Think it over.

## FINANCIAL REPORT

### May 1st to May 20th, Inclusive

[illegible]

# Great Southwestern Well

***A Great Giant Mastered After It Had Broken Loose—***
***Ingenuity of Man Controls Water.***

THE big McCormick well which has been given a great deal of newspaper publicity of late, was drilled in Terrebonne parish, Louisiana, 19 miles south of the town of Houma. This well was brought-in in March, and was successfully capped. Gas from this well was used for drilling still another well.

On the 12th of April, a great wind storm came up and destroyed the derrick, the timbers falling on the top of the gate valve of the McCormick well which was already at a breaking strain from the great rock pressure within the well. This caused the gate to crack open like an egg shell turning the well loose.

Mr. W. H. Sedberry of the Marshall Gas Company happened to be in Shreveport at the time, and was informed of the accident at the well by Mr. McCormick, and was requested to accompany him to Houma at once and superintend the closing in of the well. A big job and no time to spare.

Upon arriving at Houma Friday afternoon, April 13th, Mr. Sedbury immediately drove to the well and saw that the effort then being made was not proving successful.

The following is Mr. Sedberry's story of the affair: "Realizing from the enormous noise that the well must be of great volume, I suggested that the open flow pressure should be taken before proceeding with our effort to close-it-in, but having no instruments or apparatus of any kind at hand, we built an apparatus similar to the one finally used, but of much lighter weight. Then we endeavored to place the gate over the well with this arrangement, but after the first effort we agreed that it would be unsafe, and impracticable.

Our next move was to send to Houma and get a quarter inch piece of pipe and pressure gauge, with these we constructed an improvised Pitot tube.

On Saturday morning, April 14th, the end of the

## WEST VIRGINIA GAS ASSOCIATION

## NO GASOLINE IN SOME GASES

## NATURAL GAS SHORTAGE.

BY H. C. REESER.

DURING the record breaking cold weather last month there was a marked scarcity of natural gas all over the country—not alone in Ohio, but Pennsylvania, West Virginia, New York, Oklahoma, Indiana and Texas; in fact, not a single state, or community, where natural gas is extensively used, was free from shortages for at least brief periods.

This condition is readily explained by the facts.

We all know that the carrying capacity of a pipe line of given size is limited, just as much so as a peck measure can only hold a certain number of potatoes. You can perhaps crowd in a few extra potatoes by putting in small ones, or stacking them on top, but if you put in too many they will fall off.

It is just the same with a gas line.

A ten inch line of a fixed length will carry a certain amount of gas, at a certain pressure, say 100 lbs. to the square inch. If you increase the pressure to 200

COOLER PIPES AT THE WHEELER BOOSTER PLANT.

lbs., you can further increase the capacity of the line, and if you put on 300 lbs. pressure, you can deliver an additional amount of gas, but there is a limit to that amount just as there is to the peck measure. If too much pressure is put on the line, there is grave danger of it blowing up, and shutting off the supply entirely; therefore the experienced gas man will not run the pressure up beyond a certain factor of safety.

In ordinary weather, and in normal times it is a comparatively easy matter to furnish an adequate supply of gas for all requirements, but conditions have been abnormal, as we all know, and it is not strange that natural gas companies should fail at times to live up to the high standard of efficiency that had been established in previous years.

No person could foresee the extraordinary demand that has been made on the gas companies by reason of the unexpected wave of prosperity that has swept over the country, causing every industry plant that could turn a wheel to run night and day. Not only did the factories want an extra amount of gas, but the great army of employees consumed more gas than they ever did before, and by reason of thousands of men working at night, more gas has been used for cooking and heating than in former years.

Then again the coal operators were unequal to meet the emergency, and could not furnish sufficient coal, and the price was advanced so that coal was much more expensive than gas, with the result that many coal consumers commenced using gas, and once a gas consumer, always a gas consumer, because they will never go back to coal again.

Even the railroads contributed to the gas shortage by failure to move coal promptly, and so the great army of gas users was augmented by thousands of former coal consumers. In one city alone it is reported that 5,000 coal furnaces were burning gas this winter on account of the scarcity and high price of coal. Therefore it can be readily understood why there has been a scarcity of gas in zero weather.

It is not a shortage of gas so much as the inability to get sufficient through the pipe line systems, due to the unusual and abnormal causes previously cited. Everybody wanted more than they ever used before, and although the pipe lines were crowded to their utmost, it was a physical impossibility to get sufficient through to meet the great demand.

The problem that now confronts the gas men is how long will this era of prosperity last, and will it pay to build additional trunk lines.

The price of pipe is almost prohibitive, costing about three times as much as it did eighteen months ago, and the pipe mills will not guarantee deliveries of any large quantity under one year's time.

Will the consumers help defray the cost of additional pipe lines by agreeing to pay more for the gas, which is now the cheapest fuel known to mankind?

## KENTUCKY BRANCH OF DOHERTY OIL INTERESTS OPENED.

THE Empire Gas & Fuel Company of Kentucky have opened an office in the Colonial Building, Winchester, Kentucky, to conduct oil operations in that state as the company has a vast acreage in the eastern part, and are preparing to drill.

Charles E. Hill, who has connected with the Dominion Gas Company, is general superintendent of the new development. F. B. Tomb, also of the Dominion Company, is superintendent of the land department, while Calvin T. Moore is in charge of the geological work under Everett Carpenter, chief geologist. There are about twenty men attached to the Kentucky geological branch.

G. E. Harned is in charge of the office.

## THE IMPORTANCE OF LESSER THINGS.

It is well for us to chart the great seas of inspiration, but we must not forget the little wayside streams that offer us refreshment as we wander along the dusty roadway of life.

# RESULTS OF DRILLING--LATEST REPORTS

## PENNSYLVANIA FIELD

### BRADFORD FIELD

### MIDDLE FIELD

### VENANGO CLARION

### BUTLER-ARMSTRONG

### SOUTHWEST PENNSYLVANIA

## WEST VIRGINIA

Marsh, Pgh. & W. Va. G. 1.....gas
Ford, Pgh. & W. Va. G. 2.....gas
Hawkins, Larimer O. & G. 1.....gas
Marshall County—
Emery, Mfrs. L. & H. 1.....gas
Brooke and Hancock—
Hartley, Collins & Co. 5.....dry
Cressinger, Shady Glenn O. & G. 1.....gas
Sistersville—
Hamilton, Carter Oil 2.....gas
Wood County—
Bartlett, Henderson Oil 8.....dry
Ritchie County—
Simms, L. N. Clark & Co. 1.....dry
Lemon, So. P. O. 7.....gas
Perry, So. P. O. 1.....gas
Goff, Hope Gas 1.....gas
Frederick, Hope Gas 1.....gas
Scott, Hope Gas 1.....dry
Wilson, Hope Gas 4.....dry
Darnold, I. O. & G. P. 2.....gas
Darnold, I. O. & G. P. 3.....gas
Brown, Hope Gas 1.....dry
Lambert, Lambert & Co. 1.....dry
Wirt County—
Elliott, R. Gallagher & Co. 1.....dry
Shingleton, Pine Oil 2.....dry
Calhoun County—
Parr, Bowser & Co. 2.....gas
Roane County—
Walker, Sydney O. & G. 1.....gas
Kanawha County—
Dawson, U. F. G. 1.....dry
Ross, O. F. O. 1.....gas
Bean, So. P. O. 1.....gas

Dry ..... 17
Gas ..... 48

## SOUTHEASTERN OHIO.

Woodsfield—
Buckio, Staudt & Co. 4.....dry
Jackson Ridge—
Allen heirs, Greenbank Oil 1.....dry
New Matamoras—
Herron, Watterson & Brown 1.....dry
Hessam, Saunders & Co. 1.....dry
Perry County—
Conaway, Ralph Bros. 1.....dry
Wallace, Moxahal Oil 1.....gas
Hocking County—
O'Neill, Charters Oil 2.....dry
Conkley, O. F. S. Co. 1.....dry
Hysel, Corts, Botkin & Co. 2.....dry
N. F. P. Co., Haydenville Oil 17.....dry
Harden, Preston Oil 2.....dry
Poling, Plymouth O. & G. 1.....dry
Coshocton County—
Major, Plainfield O. & G. 8.....gas
Major, Plainfield O. & G. 3.....gas
Macksburg—
Weinstanley, Caldwell Oil 1.....dry
Noble County—
Blake, T. B. Keuh & Co. 2.....dry
Crock, Morrin, Hedges & Co. 1.....dry
Morgan County—
Dresser, E. W. Pitts & Co. 9.....dry
Dresser, E. W. Pitts & Co. 10.....dry
Marietta—
Nolan, Five Bros. Oil 2.....dry
Stenger, Hoffman & Co. 1.....dry
Hendericks, Lauderbaugh & Co. 1.....dry
Bowman, Kammerer Oil 7.....dry
Miller, Savage & Co. 1.....dry
Decker, W. A. Decker & Co. 7.....dry
Fickison, Martin Smith 2.....dry
Carroll County—
Poyd, Popcorn Oil 1.....dry
Staley, Cameron & Co. 1.....dry
Columbiana County—
McDonald, C. S. Peters & Co. 2.....dry

Dry ..... 26
Gas ..... 3

## PENNSYLVANIA FIELDS.

### SUMMARY OF COMPLETED WORK.

| Field. | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Allegany | 14 | 26 | 0 | 0 |
| Bradford | 33 | 88 | 2 | 1 |
| Middle Field | 22 | 22 | 1 | 3 |
| Venango-Clarion | 78 | 114 | 7 | 3 |
| Butler-Armstrong | 24 | 84 | 7 | 4 |
| S. W. Pennsylvania | 64 | 1,578 | 18 | 14 |
| West Virginia | 139 | 1,148 | 17 | 48 |
| Southeast Ohio | 108 | 1,189 | 26 | 3 |
| Total | 482 | 4,249 | 78 | 76 |

## CENTRAL OHIO.

### LICKING COUNTY.

Granville—Sue Hartman, Heisey Gas 2.....gas

### FAIRFIELD COUNTY.

Walnut—Brooks lot, E. Defenbaugh 1.....gas

### ASHLAND COUNTY.

Green—Cath. Smith, Logan G. & F. 1.....gas
P. Shafer, Logan G. & F. 1.....gas
P. Shafer, Logan G. & F. 3.....gas
Fred Franks, Ohio Fuel Sup. 2.....gas
H. R. Long, Ohio Fuel Sup. 1.....gas
Mohican—W. Stanley, Ohio Fuel Sup. 1.....dry
M. B. Yocum, Logan G. & F. 2.....dry
W. H. Obrecht, Logan G. & F. 2.....gas
Hanover—Adam Young, Ohio Fuel S. 1.....gas

Dry ..... 2
Gas ..... 7

### MEDINA COUNTY.

Prunswick—Jas. Crum, Ohio Fuel S. 1.....dry

### LORAIN COUNTY.

Grafton—P. Diemling, Ohio Fuel Sup. 1.....gas

### WAYNE COUNTY.

Congress—J. E. Snyder, Logan G. & F. 2.....gas
J. & M. Packard, Logan G. & F. 1.....gas
Sam Wood, Ohio Fuel Sup. 1.....gas
Emma C. Weaver, Ohio Fuel Sup. 1.....dry
Cannan—J. Gearhart, Ohio Fuel Sup. 4.....gas
C. F. Martin, Ohio Fuel Sup. 2.....gas
Joel Holmes, Ohio Fuel Sup. 1.....dry
G. A. Smith, Ohio Fuel Sup. 1.....dry
Wooster—H. A. Maize, C. Jones & Co. 1.....dry
Wayne—W. A. Taylor, Vanhover & Co. 1.....dry
Clinton—D. L. Bonham, East Ohio G. 1.....gas

Dry ..... 5
Gas ..... 6

### RICHLAND COUNTY.

Monroe—Applegate, Logan G. & F. 1.....gas

CUYAHOGA COUNTY

VINTON COUNTY

## CENTRAL OHIO FIELD

SUMMARY OF COMPLETED WORK

## LIMA FIELD

SANDUSKY COUNTY

MERCER COUNTY

VAN WERT COUNTY

SENECA COUNTY

CHAMPAIGN COUNTY

## LIMA FIELD

SUMMARY OF COMPLETED WORK

## INDIANA FIELD

JAY COUNTY

RANDOLPH COUNTY

PIKE COUNTY

SULLIVAN COUNTY

WABASH COUNTY

MADISON COUNTY

## INDIANA FIELD

SUMMARY OF COMPLETED WORK

## KENTUCKY TENNESSEE

WAYNE COUNTY

WOLF COUNTY

LAWRENCE COUNTY

MORGAN COUNTY

BOYLE COUNTY

POWELL COUNTY.

Ashley-Pilot—C. Wireman, Beckett & Co. 2.....dry
W. I. Norton, W. Simpson 1.....dry
Sanford White, W. H. Hearne & Co. 5.....dry
D. C. Hall, Jesse Hare & Co. 1.....dry
Geo. Mullen, Root-Hupp 3.....dry
Doc. Rogers, Root-Hupp 1.....dry

Dry ..... 6

LINCOLN COUNTY.

Parlor Grove—A. Shuler, D. Boone O. 5.....gas

WHITLEY COUNTY.

Williamsburg—Raines, Kentucky Oil 2.....gas

## TENNESSEE.

SCOTT COUNTY.

Rugby Road—Williams, Ohio Oil 1.....gas

## KENTUCKY-TENNESSEE.

SUMMARY OF COMPLETED WORK.

| | Apr. '17 | | | Mar. '17 | | |
|---|---|---|---|---|---|---|
| | Comp. | Prod. | Dry | Comp. | Prod. | Dry |
| Wayne | 5 | 11 | 2 | 5 | 18 | 3 |
| Wolfe | 3 | 25 | 2 | 1 | 3 | 0 |
| Lawrence | 4 | 8 | 2 | 2 | 55 | 0 |
| Morgan | 1 | 0 | 1 | 1 | 0 | 1 |
| Estill | 68 | 2,797 | 11 | 72 | 3,285 | 13 |
| Powell | 10 | 145 | 6 | 8 | 510 | 3 |
| Lee | 0 | 0 | 0 | 7 | 85 | 0 |
| Allen | 5 | 900 | 0 | 11 | 275 | 7 |
| Bath | 0 | 0 | 0 | 1 | 0 | 1 |
| Lincoln | 1 | 0 | 1 | 2 | 0 | 2 |
| Whitley | 1 | 0 | 1 | 0 | 0 | 0 |
| McCrary | 1 | 12 | 0 | 0 | 0 | 0 |
| Knox | 6 | 60 | 0 | 3 | 28 | 0 |
| Rockcastle | 1 | 10 | 0 | 0 | 0 | 0 |
| Jackson | 1 | 10 | 0 | 0 | 0 | 0 |
| Floyd | 1 | 0 | 1 | 0 | 0 | 0 |
| Tennessee | 1 | 0 | 1 | 1 | 200 | 0 |
| Total | 109 | 3,978 | 28 | 114 | 4,459 | 30 |

## ILLINOIS FIELD.

CLARK COUNTY.

Casey—Zora Shawyer, Paul Kuhn 3.....dry
Martinsville—J. M. Boyer, Lane & Co. 1.....dry

Dry ..... 2

CRAWFORD COUNTY.

Martin—C. P. Carleton, Mahutska Oil 17.....dry
Honey Creek—Mary Hoke, Ohio Oil 15.....dry
Roscoe Wallace, Ohio Oil 2.....dry
Thos. Wesley, Ohio Oil 6.....gas
H. N. Rickey, S. Everett & Co. 2.....dry
C. S. Jones, J. D. Madding trus. 4.....dry
W. J. Weger, New Hope Oil 1.....dry

Dry ..... 6
Gas ..... 1

LAWRENCE COUNTY.

Dennison—John Payne, Perry Andrews 1.....dry
F. Bartholomy, Central Ref.....dry

Dry ..... 2

MARION COUNTY.

Sandoval—A. E. Benoist, Southwestern O. & G. 20.....gas

WABASH COUNTY.

Wabash—Tracy hrs., Allendale Oil 1.....dry
Mt. Carmel—Ezra Rilley, Stoltz & Co. 1.....dry

Dry ..... 2

## KANSAS.

MONTGOMERY COUNTY.

2-33-15, Hurry, Roth et al. 1.....gas
3-33-15, C. E. Roth 2.....dry
31-32-15, Pope, Perryman et al. 3.....dry
18-33-15, Bolt, Northland Oil 1.....dry
19-34-15, Dobson, Anerheart Oil 6.....dry

Dry ..... 4
Gas ..... 1
Gas production .....1,000,000

BUTLER COUNTY.

El Dorado and Vicinity—
35-25-4, Dillenbeck Oil & Gas 2.....gas
30-24-4, Meade, Snowden Bros. 1.....dry
35-25-4, Steele, West et al. 1.....dry
29-28-4, Love, Empire G. & F. 5.....dry
27-28-4, Snodgrass, Flint Hills Oil 1.....dry
32-28-4, Hartenbrow, Silver Leaf Oil 1.....dry
6-29-4, Wilford, Monitor O. & G. 1.....gas
29-28-4, Brown, Sperry O. & G. 4.....dry
29-28-4, Brown, Sperry O. & G. 5.....gas

Dry ..... 6
Gas ..... 3
Gas production .....5,000,000

CHAUTAUQUA COUNTY.

34-32-12, Theobald, Perry et al. 1.....gas
5-34-12, Seth Ely 20.....dry
32-33-12, Alford, Seth Ely 17.....dry
5-34-11, Casement, Link Oil 9.....dry
3-35-11, J. R. Burnes 1.....gas
9-34-12, Prairie O. & G. 1.....dry
16-33-11, Drew, Denman Bros. 4.....gas

Dry ..... 4
Gas ..... 3
Gas production .....3,000,000

WILSON COUNTY.

6-30-16, Martin, Prairie O. & G. 10.....dry

NEOSHA COUNTY.

3-27-18, Lacy, J. B. Huffan 1.....gas
7-29-30, Whitworth et al. 1.....dry
32-28-19, Hudson, Byers et al. 1.....dry
36-30-20, Owen & Hicks 1.....dry

Dry ..... 3
Gas ..... 1
Gas production .....500,000

MIAMI COUNTY.

9-17-23, Phillips, Missouri O. & G.....gas
34-17-23, Evans, Shaw et al. 1.....dry
9-17-23, Evans, Phillips, Mickey et al. 2.....gas
30-17-22, Uncle Sam Oil 1.....dry

Dry ..... 2
Gas ..... 2
Gas production .....3,000,000

FRANKLIN COUNTY.

27-16-21, Groves, Rockwood Oil 6.....dry
13-18-20, Jordan, Sawyer et al. 2.....dry

Dry ..... 2

### WILDCATS

### OKLAHOMA

#### WASHINGTON COUNTY

#### BIRD CREEK VERA

#### CHEROKEE SHALLOW SAND

#### OSAGE

#### CLEVELAND PAWNEE COUNTY MANFORD

#### CUSHING SHAMROCK

#### TULSA GLENN POOL WICEY KELLYVILLE

#### OKMULGEE MORRIS

#### BALD HILL BRAD SAND

34-15-13, Grayson, M. L. Carr 9.....dry

Dry ..... 8
Gas ..... 2
Gas production .....6,000,000

WAGONER, MUSKOGEE AND ROGERS COUNTIES.

33-18-15, Bird, Solo Oil 5.....dry
33-18-15, Bird, Ardizzone et al. 6.....gas
2-17-15, Atkins, Vogler et al. 1.....dry
13-14-15, Belstreat, W. P. Pine 1.....dry
13-14-15, Peter, Probst et al. 1.....dry
15-14-15, Durant, Nelson et al. 1.....dry
18-16-15, Gries, Lampton et al. 2.....dry
34-15-15, Franklin, Weiser et al 1.....dry
20-15-16, Woodal, Hoffield et al. 1.....gas
30-15-16, Howard, Boynton Oil 2.....gas
7-13-15, Freeman, Rebold et al. 3.....gas
15-16-15, Drew, Rosier et al. 2.....gas
12-14-15, Peters, Humble-Margay 2.....dry
4-14-16, McQueen, Probst et al. 1.....dry
7-14-16, Brown, E. E. Harris 1.....dry
27-13-15, Hutton, John Owen 1.....dry
31-18-15, Johnson, Bearman & Co. 2.....dry

Dry ..... 12
Gas ..... 5
Gas produtcion .....30,000,000

KAY COUNTY.

6-28-1 E, Wolf, Blackwell O. & G. 7.....gas

Gas ..... 1
Gas production .....20,000,000

HEALDTON POOL, CARTER COUNTY.

30-3-3, Gibson, Middle Tennessee Oil 1.....dry
15-4-3, Casey & Nichols 1.....gas
15-4-3, Carner, Gates Oil 17.....gas
15-4-3, Harmon, Magnolia Pet. 21.....dry

Dry ..... 2
Gas ..... 2
Gas production .....16,000,000

WILDCATS.

Garfield County—
14-22-4 W., Devely, Van Winkle 1.....dry

## ARKANSAS.

Crawford County—
30-10-31 W., Donohue, Donaugh O. & G. 1.....dry
16-10-30 W., Meadows, Donaugh O. & G. 1.....dry
29- 9-31 W., Holt, Donaugh O. & G. 1.....dry
16- 9-32 W., Bond, E. C. Crawford 1.....dry
25- 9-31 W., Kacheloe, E. C. Crawford 1.....gas

Dry ..... 4
Gas ..... 1
Gas production .....2,500,000

## KANSAS.

SUMMARY OF COMPLETED WORK.

| Field. | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Montgomery | 29 | 276 | 4 | 1 |
| Butler | 72 | 11,165 | 6 | 3 |
| Chautauqua | 21 | 225 | 5 | 3 |
| Wilson | 10 | 48 | 1 | 0 |
| Neosho | 18 | 280 | 3 | 1 |
| Miami | 17 | 250 | 2 | 2 |
| Allen | 8 | 70 | 0 | 0 |
| Franklin | 8 | 50 | 2 | 0 |
| Wildcats | 4 | 100 | 1 | 0 |
| Total | 208 | 12,854 | 28 | 12 |

## OKLAHOMA.

SUMMARY OF COMPLETED WORK.

| Field. | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Cherokee d. s. | 70 | 964 | 12 | 3 |
| Cherokee s. s. | 61 | 2,155 | 8 | 2 |
| Osage | 48 | 4,080 | 3 | 6 |
| Cleveland | 19 | 1,405 | 1 | 3 |
| Cushing-Shamrock | 36 | 1,645 | 6 | 1 |
| Creek | 183 | 6,370 | 50 | 15 |
| Kay County | 4 | 1,850 | 0 | 1 |
| Healdton | 47 | 4,090 | 2 | 2 |
| Wildcats | 4 | 100 | 0 | 0 |
| Total | 372 | 22,650 | 83 | 33 |

## MID-CONTINENT.

SUMMARY OF COMPLETED WORK.

| Field | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Oklahoma | 472 | 22,659 | 83 | 33 |
| Kansas | 208 | 12,854 | 28 | 12 |
| Arkansas | 5 | 0 | 4 | 1 |
| Total | 685 | 35,513 | 115 | 46 |

## TEXAS-PANHANDLE.

WICHITA COUNTY.

Electra—
Waggoner, Producers Oil 112.....dry
Waggoner, Producers Oil 114.....dry
Brewer Honaker, Magnolia Petroleum 1.....dry
Crow, W. W. Silk 7.....dry
Waggoner, Producers Oil 111.....dry

Dry holes ..... 5

BURKBURNETT.

Harden, Mann et al. 5.....dry
Beach, Crowell & Connors 3.....dry
Beach, Crowell & Connors 4.....dry
Ferguson, Unity Oil 3.....dry
Tom, McBride 15.....dry
Fowler, Willis et al. 2.....dry
Dodson, Three K Oil 8.....dry
Cropper, Celina Oil 7.....dry

Dry holes ..... 8

WILDCATS.

Archer County—
Mangold, Owen & Wilson 1.....dry
McCall & Sanderson, Gulf Production 1.....dry
Meador, Wichita, Archer O. & G. 1.....dry
Stephens County—
Mitchell, Texas & Pacific Coal.....dry
Palo Pinto County—
Glover, Empire Gas & Fuel 1.....dry
Jones County—
Near Louders, Louders parties.....dry

Dry holes ..... 6

## TEXAS-PANHANDLE.

SUMMARY OF COMPLETED OPERATIONS.

| | Comp. | Prod. | Dry |
|---|---|---|---|
| Electra | 19 | 760 | 5 |
| Burkburnett | 43 | 379 | 8 |
| Petrolia | 0 | 0 | 0 |
| Strawn | 13 | 365 | 0 |
| Wildcats | 7 | 125 | 6 |
| Total | 82 | 1,629 | 19 |

## NORTH LOUISIANA.

[illegible] dry
[illegible] gas
[illegible]
[illegible] dry
[illegible] gas
Red River
[illegible] dry
[illegible] dry
[illegible] gas
[illegible]
[illegible] gas
[illegible] gas
[illegible]
[illegible] dry
[illegible] dry
[illegible] dry
[illegible] gas
[illegible] dry
[illegible] gas
[illegible] dry

[illegible]

## NORTH LOUISIANA

### SUMMARY OF OPERATIONS

[illegible]

## GULF COAST REGION

### GOOSE CREEK

[illegible] gas
[illegible] gas

### SARATOGA

[illegible] gas

### MISCELLANEOUS

[illegible] gas

## GULF COAST

### SUMMARY OF COMPLETED WORK

[illegible]

## TEXAS-LOUISIANA

### SUMMARY OF COMPLETED WORK

[illegible]

## STANDARD OIL SUBSIDIARIES

### May 1st to May 20th Inc

[illegible]

### Independent Oil Companies

[illegible]

# AROUND THE BELT

**New Wells, New Pipe Lines, New Contracts, Additions and Extensions. A Fund of Valuable News Gathered for the Journal Through Many Sources.**

## TRADE PERSONALS

It will be noted that the names appearing under the personal headings are exclusively those of men interested in the development of the natural gas field. Those wishing to learn of matters pertaining to men interested in the field of artificial gas should refer to THE GAS INDUSTRY magazine, published at 60 Pearl Street, Buffalo, N. Y., which devotes its columns entirely to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being specifically issued for its respective field. In this way each magazine renders 100% efficiency in the industry it covers.—Publisher's Note.

**WANTED:** Position as Manager of gas plant by practical gas man and meter expert, fifteen years' experience. Address 2193, NATURAL GAS AND GASOLINE JOURNAL.

**FOR SALE**—45 H. P. 4-cycle automatic Gas Engine. First-class condition. Address G G G Metal Stamping Co., Warren, Pa.

BUCKHOLZ, WILLIAM, is President of the new Sunflower Oil & Gas Company recently organized in Kansas City, Kan.

BURRELL, GEORGE A., has been appointed lecturer on natural gasoline at the University of Pittsburgh, Pittsburgh, Pa. Mr. Burrell will give a course of six lectures at the university.

CLAPP, F. G., Managing Geologist of the Associated Geological Engineers, has recently completed a monograph on the present status of oil and gas developments in South America.

FULLER, M. L., Managing Geologist of the Associated Geological Engineers, is conducting exploration work in West Virginia.

MCDONALD, DONALD, Manager of the Louisville Gas & Electric Company, Louisville, Ky., has been appointed on one of the seven committees to supervise the army draft registration.

MITCHELL, A. R., Scout for the Cosden Oil & Gas Company, Tulsa, Okla., has joined the officers' reserve corps.

RAMAGE, S. Y., at the annual meeting of the Union Natural Gas Corporation, Pittsburgh, Pa., was chosen Vice-President.

WHITCOMB, E. P., has been elected President of the Union Natural Gas Corporation, Pittsburgh, Pa.

ZOCH, F. P., was recently appointed to take charge of the Barnsdall Gasoline Department, Bartlesville, Okla. Mr. Zoch is installing three absorption plants for the company.

## INCORPORATED

It will be noted that we here specifically point to natural gas companies that have been incorporated. Those desiring to learn of artificial gas companies that have received incorporation papers should refer to THE GAS INDUSTRY magazine, published at 60 Pearl Street, Buffalo, N. Y., which devotes its columns entirely to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being specifically issued for its respective field, thus each rendering 100% efficiency in the industry it covers.—Publisher's Note.

**KANSAS—Kansas City**

The Sunflower Oil & Gas Company has been formed for the purpose of developing leases in Miami and Franklin County fields. The officers in the new concern are: William Buckholz, President; I. N. Berry, Vice-President; H. M. Griffith, Secretary, all of Kansas City. The new company has about 420 acres on which to begin operations.

**PENNSYLVANIA—Franklin**

The French Creek Oil & Gas Company has been incorporated with a capital stock of $300,000. The incorporators are: C. C. Bailey, W. E. Bailey, Theodore Clulow, Nellie M. Bailey.

## ITEMS OF FINANCE

**NEW YORK—New York City**

The stockholders of the National Fuel Gas Company have authorized an increase in the capital stock from $16,000,000 to $32,000,000 At a subsequent meeting of directors, the question of disposition of the new stock will be taken up.

**PENNSYLVANIA—Pittsburgh**

The Pittsburgh Oil & Gas Company has made application to list on the Pittsburg Stock Exchange 400,000 shares of stock, par value, $5 per share.

**TEXAS—Fort Worth**

The annual report of the Lone Star Gas Company shows gross earnings of $1,519,386, an increase of $101,522; expenses, taxes, etc., $375,000, a decrease of $49,552; net income, $1,141,425, an increase of $151,074; depreciation, etc., $592,710, an increase of $61,612; net earnings, $548,715, an increase of $89,462; undivided profits after the payment of dividends, $192,719, an increase of $77,523.

**WEST VIRGINIA—Huntington**

The Columbia Gas & Electric Co. reports that the production of gasoline for the month of April amounted to 998,000 gallons, making a total for the year to date of fully 3,950,000 gallons.

# PER CUBIC FOOT—RATES

[illegible] Publisher's Note

**MISSOURI Kansas City**

[illegible]

**NEW YORK—Canisteo**

[illegible]

**Hornell**

[illegible]

**Le Roy**

[illegible]

**OHIO—Akron**

[illegible]

**Ashtabula**

[illegible]

**Parkersburg**

[illegible]

**WEST VIRGINIA Logan**

[illegible]

**Ravenswood**

[illegible]

**Spencer**

[illegible]

**Williamson**

[illegible]

# ELECTED

**NEW YORK New York City**

[illegible]

**PENNSYLVANIA O. City**

[illegible]

**Pittsburgh**

[illegible]

W. R. Hadley; General Manager, E. P. Whitcomb; Assistant General Manager, A. A. Armstrong; Assistant Secretary and Treasurer, George R. Brink; Auditor, Mr. Newman. Robert Law was elected a director in the place of his father-in-law, the late T. N. Barnsdall.

## NEW FRANCHISES

It will be noted that the franchises referred to below are those specifically granted natural gas companies. Those desiring to learn of artificial gas franchises granted should refer to THE GAS INDUSTRY magazine, published at 60 Pearl Street, Buffalo, N. Y., which devotes its columns entirely to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being exclusively issued for its respective field, and each rendering 100% efficiency in the industry it covers.—Publisher's Note.

**LOUISIANA—New Orleans**

The McCormick interests of Shreveport have applied for a franchise in this city under which it is the intention to pipe the city for natural gas obtained from the big well brought in by the Mansfield Oil & Gas Company, one of the McCormick properties, twenty miles from Terrebonne parish, 45 miles south and west of New Orleans.

**TEXAS—Corpus Christi**

C. L. Witherspoon of San Antonio has been granted an extension of 60 days in which to accept the franchise granted him by the city recently.

## GENERAL

It will be noted that the items appearing under this heading pertain specifically to natural gas matters, development in natural gas fields, etc. Those wishing to obtain a knowledge of the newest developments along artificial gas lines, are referred to THE GAS INDUSTRY magazine, published at 60 Pearl Street, Buffalo, N. Y., which devotes its columns exclusively to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being specifically issued for its respective field, and each, therefore, rending 100% efficiency in the industry it covers.—Publisher's Note.

**ARKANSAS—Crawford County**

The Clear Creek Oil & Gas Company recently completed a gasser said to be good for 4,500,000 feet, on the Kibler farm, near Fort Smith.

**KANSAS—Elk County**

LaDow & Striker have completed a gasser showing 5,000,000 feet at a depth of 1,727 feet on the Adam farm, section 29-29-12, and are now drilling 500 feet to the southeast of the above location. The gas will furnish fuel for development of this lease of 2,000 acres.

The Johnson test on the O. P. Ruddle lease in section 21-31-12, is reported to be good for 2,000,000 cubic feet.

**Paola**

Wood, Billingslea & Strain, struck a fairly good gasser on the Altman lease, section 8-17-22. The gas will be used for power to pump their oil wells in that vicinity.

**KENTUCKY—Allen County**

The Columbus Gas Company of Columbus, Ohio, has purchased for $75,000 a large acreage in this county, west of McCreary County, and is now attempting to secure acreage in Monroe, Cumberland and Clinton Counties west of the McCreary gas and oil fields.

**La Rue County**

The Nelson County Oil & Mineral Company has leased several thousand acres in Nelson and La Rue Counties, and will drill at once a number of test wells in Nelson County.

**Louisville**

The Louisville Gas & Electric Company is furnishing garden seeds free to its employes, and is encouraging the raising of vegetables in every way possible.

**NEW YORK—Bolivar**

The Empire Gas Company has completed a fair gas well on the Hockenberry lot, a mile east of this village.

**Madison County**

According to report the first well to be drilled by Ohio interests in this county will be located on the farm of Charles Schultz, between Chittenango and Chittenango Falls. Doherty Bros. of Silver Creek have the contract for drilling the well.

**Marilla**

Drilling operations are under way on the farm of Albert Fox, north of the village.

**OHIO—Ashland County**

In Hanover Township the Ohio Fuel Supply Co. has drilled a gas well on the southeast corner of the Amanda Zimmerman farm, Section 5, and another good gas well in a test on the northwest corner of the J. & A. Strickler farm, section 18. The Logan Gas & Fuel Company's second well on the northwest corner of the E. & M. Brubaker farm, Section 5, is a light gas well.

**Fairfield County**

In Walnut Township, the Logan Gas & Fuel Company drilled in a good gas well in a test on the P. B. Daubmier, section 3, and has made a location for a test on the southeast corner of the Rex M. Gill farm, section 4.

The Ohio Fuel Supply Company's test along the north line of the A. C. Bryson, section 3, is a very light gas well.

**Findlay**

A good gasser has been drilled in by the Findlay Dairy Company on the old Taylor school lot. The production is sufficient to care for the operating requirements of the company's plant.

**Hocking County**

In the Haydenville field, in the northeast quarter of section 7, Greene Township, the Haydenville Oil Company has completed its No. 14 well, on the National Fire Proofing Company's farm, and has a 500,000 cubic feet per day gas well.

**Licking County**

In Licking Township, the Heisey Gas Company's No. 3 on the E. I. Meredith is a gas well good for about 500,000 cubic feet.

The Columbus Natural Gas Company is drilling No. 2 the southwest corner of the John L. Diltz

Liberty Township the Ohio Fuel Supply Company is a well in a test on the N. F. Harris section 13

The Licking Window Glass Company is drilling a the John Mills farm in Washington Township

**Medina County**

Medina Township the Ohio Fuel Supply Company the southwest corner of the Levi Isenbarger a a light gas well but will be given a shot

**Richland County**

The Logan Gas & Fuel Company has completed a very gas on the Mary E. Oswald farm section 13 Mo Township

**Tuscarawas County**

A Wooster company started a test on the A farm. It is a light gas sand in the Berea gra a contract for drilling a 2-inch test on the Mc farm

**Wayne**

Fuel Supply Company has drilled in a 2 feet well on the Nafziger farm in Wayne miles south of Wooster

**OKLAHOMA—Catoosa**

Gillespie Brick Company No. 1 on the West the southwest corner of the southeast quarter gas sand at 1,300 feet at the top of the gas at 1,350 feet and had a good 6-inch flow

**Creek County**

the Shamrock pool of the Sapulpa Magnolia Company No. 1 on the Baker a three million gas well at feet and had a good 6-inch flow

A Kansas City company has the Bowen farm gas sand at 1,300 feet of gas and 2

**Muskogee**

gas sand at 1,300 feet in the Stanley

**Oklahoma City**

Standard Oil Company has completed a well Bridges & Hall Company No. 1 on the Hodges A Company No. 1 on the Stevens Hall Company No. 1 on the Stevens

**Pawnee City**

Marland Refining Company has completed a gas sand at 1,300 feet. The well had a good 6-inch flow

**Rogers County**

Wright Production Company has completed a the Simms farm at the top of the gas sand at feet

**PENNSYLVANIA—Butler County**

Near Euclid the American Natural Gas Company has leased a large block of land. A location has been made on the W. Wilson farm and a rig is being built

**Greene County**

Kuhn Run Springhill Township, located one half a gasoline plant in the near future. The South Penn Oil Company has a very strong gasser at the Mitchell No. 1 on the M. Morris farm

**Mount Jackson**

A gas well has been struck on the Lawrence Neidel farm near here and promises to be a producer. A New Castle company drilled the well

**Pittsburgh**

The Peoples Natural Gas Company has leased large tracts of natural gas property in Oklahoma and Oklahoma and Caney River has been completed. The plan puts these properties in operation at once under one head. The present interests will continue as now with several strong new interests The Peoples Gas Company will go on a basis of Sand Springs and Oklahoma Sand and Caney River Sand

**Sheffield**

The Independent Natural Gas Company has purchased leases drilling operations in this section

**Shinglehouse**

The Wolf Run Gas Company completed a well at Lobdell on the Wetherbee & Morse farm a good gasser

**Warren**

Standard Oil Company has leased most of the Pennsylvania Gas Company's holdings in this district, but as to the State Supreme Court Standard Oil Company at

**WEST VIRGINIA Braxton County**

Gas Company has completed a well on the Nutter A. Hall farm a gasser on the

**Calhoun County**

Natural Gas Company has completed a well on the Hall farm a gasser on the

**Doddridge County**

gas sand at 1,300 feet in the Stanley

**Harrison County**

In Sardis District, the Hope Natural Gas Company completed No. 4 on the William N. Edgell farm, and it is a gasser.

On Thomas Fork, Simpson District, the Hope Natural Gas Company's test on the A. J. Williams is a gasser in the 50-foot.

In Coal Township the Grasshill Chemical Company completed a test on the Fairmont Coal Company's tract, located on Murphy's Run. It is a gasser in the fifth sand.

On Lost Creek, Grant District, the West Virginia Central Gas Company drilled No. 7 on the A. D. Bassell farm through the fifth sand and has a gasser. On West Fork River, Clark District, the Clarksburg Light & Heat Company completed a fifth sand gasser on the L. E. Barrett farm.

**Lewis County**

On Hackers Creek, Hackers Creek District, J. G. Wilson & Company drilled a test on the John Mitchell farm through the Gordon and developed a gasser.

**Marshall County**

On Big Creek, Liberty District, the Carnegie Natural Gas Company has completed a test on the John Markey farm. It is a fair gasser with a show of oil in the Big Injun sand.

**Monongalia County**

On Jakes Run, Battelle District, the Pittsburgh & West Virginia Gas Company has drilled its second test on the J. B. Lough farm to the Bayard sand. It is a fair gasser in the lower formation.

**Monroe County**

In the shallow sand territory in the Woodsfield District, Center Township, Taylor & Company have drilled a test on the Mary Oblinger farm into the Big Lime. It is located 1,800 feet southwest of the Pure Oil Company's test on the John Snyder farm and is a gasser.

South of production, 1,800 feet in Center Township, Jesse Delong & Company's test on the Ezra Craig farm is a gasser in the Maxon sand.

**Morgantown**

The West Virginia Traction & Electric Company has drilled in a 250,000-foot well on the Toothman lease.

**Ritchie County**

On the north fork of Hughes River, Clay District, the Philadelphia Company's test on the Edman Taylor is a gasser in the Big Injun and No. 4 Lehman Wilson is a gasser in the Maxon.

**Roane County**

On Little Creek, Spencer District, G. L. Cabot's test on the M. C. Heix farm is a gasser in the Berea. On Boggs Run, in the same district, the Spring Creek Oil & Gas Company got one of the same kind at No. 3 on the G. M. Sergent farm.

In Geary district the United Fuel Gas Company's tests on the J. B. Carper farm and another on the William P. Knight farm are both gassers.

On Rocky Fork, Harper district, the Sidney Oil & Gas Company has completed a test on the G. M. Walker. It is a gasser in the Cow Run.

**Rosedale**

The Mill Fork Oil & Gas Company recently let the contract for the construction of a gasoline plant at Rosedale, located in Braxton County. The plant will cost about $35,000.

**Tyler County**

In Ellsworth District the Hope Natural Gas Company drilled a test on the C. Morrow farm through the Big Injun sand and got a gasser.

In Centerville District, the Philadelphia Company drilled a second test on the M. R. McCuddough farm. It shows for a light gas pressure.

On Muddy Creek, Ellsworth District, the Manufacturers' Light & Heat Company drilled a test on the D. W. Bennett through the Big Injun; light gasser.

**Wetzel County**

In Church District, the South Penn Oil Company's test on the J. B. Church farm is a gasser in the fourth sand.

In Fish Creek, Church District, the same company drilled No. 4 on the R. L. Merriner farm through the Gordon and secured a gasser.

On Long Drain Run, Church District, the Manufacturers' Light & Heat Company drilled its test on the H. D. Garner farm to a depth of 3,619 feet and found a light gas pressure.

On the same stream and in the same district, the company drilled a test on the M. A. Jackson farm to a depth of 3,708 feet and developed a light gas pressure in the Big Injun. Nothing was found in any of the lower formations.

Two miles east of Pine Grove, Grant district, the Hope Natural Gas Company's test on the Mary B. Long farm is a gasser in the Gordon sand.

On Little Creek, Green district, the Larimer Oil Company's test on the J. L. Hawkins farm is a gasser in the Gordon sand.

On Fishing Creek, Church district, the Carnegie Natural Gas Company drilled a test on the W. G. Snodgrass farm through the fifth sand and got a fair gasser. On the same stream and in the same district, the Hope Natural Gas Company's second test on the J. S. Toothman farm is a gasser in the same formation.

**Wheeling**

At a meeting of manufacturers of Northern West Virginia here a movement was launched for limiting the exportation of natural gas out of the State. Difficulties in securing an adequate supply of the fuel have been growing during the last year and have caused the manufacturers to lose thousands of dollars, the supply at times being cut off entirely several days at a time.

**Wood County**

**WYOMING—Casper**

**ALBERTA Calgary**

**ONTARIO—Dutton**

**Kern County**

**Lompoc**

**Fort Stanley**

**JAPAN—Omo**

A large well producing [illegible] gas [illegible] quantities was completed in [illegible] depth of over [illegible] feet [illegible] as well

## ARE WE PHYSICALLY PREPARED?

A STATEMENT [illegible] the fact that the average age at death [illegible] about [illegible] the statement adds that one hundred thousand Americans are rejected annually from an application list of [illegible] three hundred thousand who are examined on application for life insurance.

The point aimed at is that the American people are not practicing physical preparedness that which is necessary to general preparedness.

Navies, guns, shipping, and all sorts of other things take first in line with the "preparedness" subject, are to a large extent useless things unless the physical strength of a nation's people is what it should be. Let us therefore see to it that one of our best measures to make sure a nation is physically prepared to meet all demands whether they be commercial or military.

The present standard [illegible] our workshops and [illegible] was built [illegible]. We hear [illegible] that a small [illegible] paying higher wages for shorter [illegible] the same [illegible] other word, [illegible] far below that which existed under [illegible] the past.

[illegible]

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THE Consolidated Gas Company of New York and its affiliated gas and electric companies have arranged whereby the employes of these companies will be allowed to subscribe to the Liberty Loan, and to pay for the bonds in weekly or monthly installments. The employes can subscribe in any amount and will be allowed to pay in installments as low as $1.00 a week on each $50.00 bond. The monthly payments will be in proportion to the size of the bonds.

Two hundred and fifty officials and heads of departments of the gas and electric companies at a meeting in the Auditorium of the Consolidated Gas Company's building, discussed the plan and arranged for a campaign to arouse enthusiasm among the employes.

Mr. George B. Cortelyou, President of the Consolidated Gas Company, in opening the meeting, made a patriotic address, which aroused great enthusiasm for the plan of the companies to have their employes subscribe for the Liberty Bonds. It is the hope of the companies to have each of their employes subscribe to at least one fifty dollar bond.

Mr. Robert A. Carter, Vice-President and Secretary of the Consolidated Gas Company, and a member of the General Liberty Loan Committee, is chairman of the subcommittee of the gas and electric companies. Mr. Frank W. Smith, Vice-President of the United Electric Light

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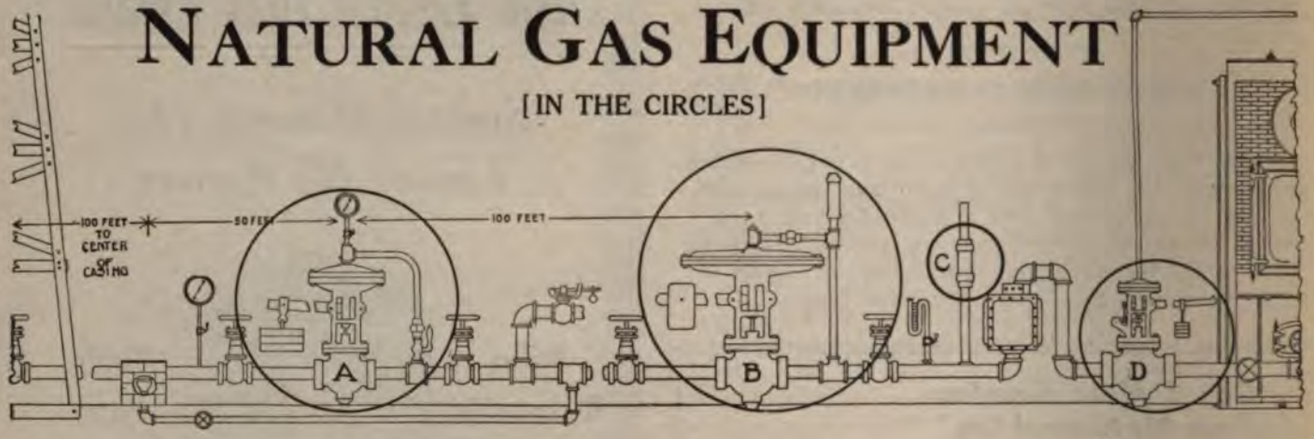


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or
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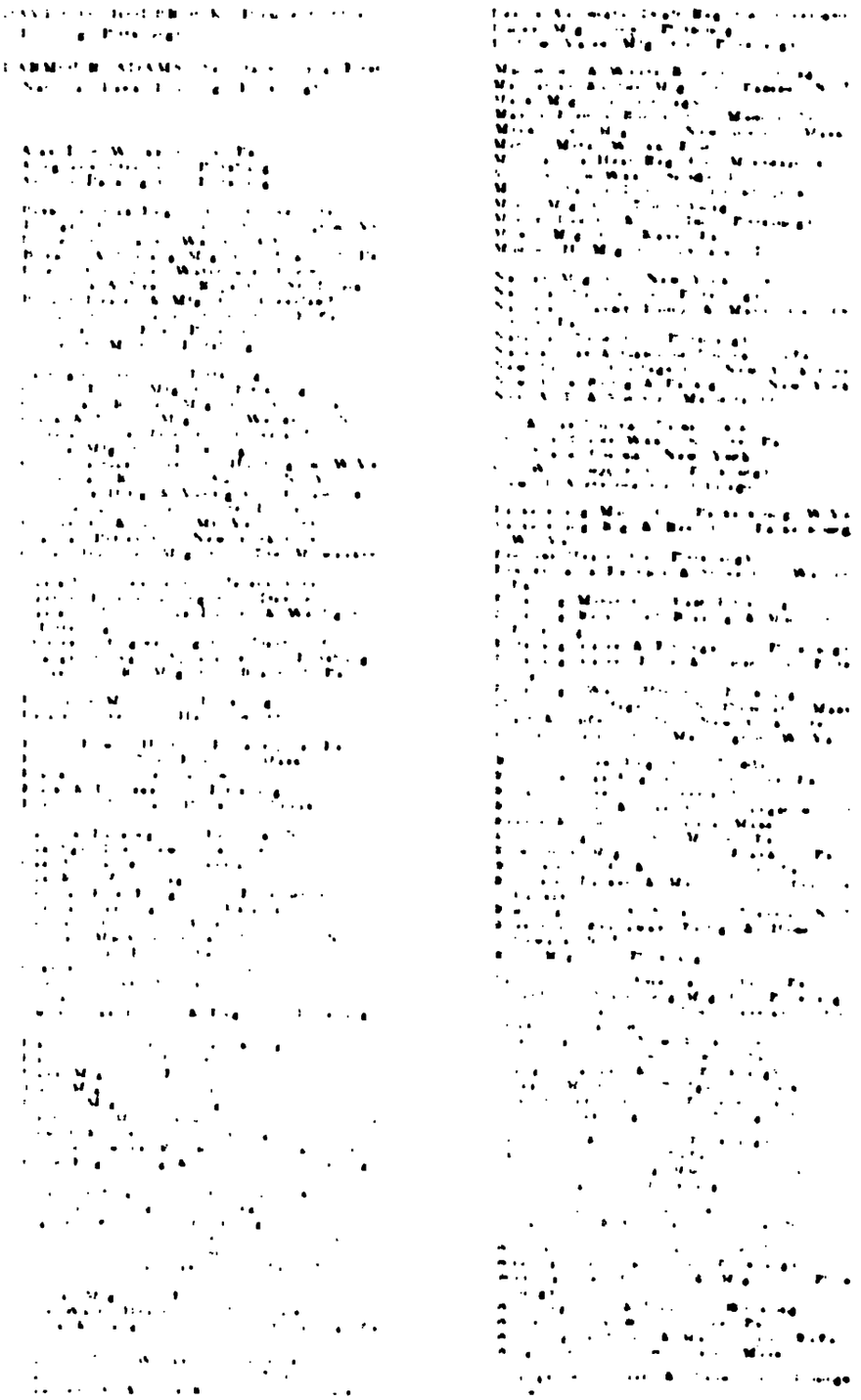
# MEMBERS OF ASSOCIATION OF NATURAL GAS SUPPLY MEN



# RIGHT, NOT HATRED

BY WALT MASON.

ALTHOUGH we'd can that kaiser skate, and beef the kronprinz chap, we chant no bitter hymn of hate, as we go forth to scrap. When we have polished off the Hun, no vengeance we'll demand; we'll calmly put away the gun in our umbrella stand. Some nations, worn by pain and toil, may possibly remark that William should be boiled in oil, his son fed to a shark. But there's no hatred in our heart, we're sane and circumspect; when we've upset Bill's apple cart, harsh measures we'll reject. We'll put old Kaiser Bill away, where he can do no harm, and set the kronprinz pitching hay on some sequestered farm. For Hindenburg a lonely rock, an island bleak and bare, where gulls around his head will flock, and lay eggs in his hair. We wish to see the German state once more a happy land, and we shall whoop no hymn of hate, when old Red Bill is canned. But she must still be pounded down till Bill no more shall own his ermine, scepter, sword and crown, his scrofula and throne. The kronprinz must be in a crate, Pop Hindenburg in jail, or (though we sing no hymn of hate) our work will not avail.

# FROM THE EDITORIAL MAIL BAG

## TWO STREAMS OF WATER EXTINGUISH GAS WELL FIRE

## TESTING CATTARAUGUS COUNTY

## PRIZES AWARDED FOR WRINKLES.

AS was announced, a goodly sum of money was set apart by the Natural Gas Association, with which to provide the necessary funds to meet the various cash prizes offered by the Wrinkle Editors.

The committee on awards appointed to decide upon who should receive prizes for the best wrinkles submitted, offered the following resolution followed by a list of those having taken part in the contest, the statement also being made as to who should receive the prizes offered.

The report of the committee was as follows:

June 15, 1917.

Your committee on award of prizes for the best wrinkles submitted to the 1917 meeting found it difficult to decide for what wrinkles prizes should be given on account of the large number and variety of wrinkles submitted. The following report is made up according to the best judgment of the committee. The prizes being given on the ground of originality and general usefulness of the wrinkle:

1st Prize, $25.00—R. F. Lloyd, Supt. Lines Wichita Natural Gas Co., Bartlesville, Okla. Wrinkle No. 46. A non-inflammable gate box.

2nd Prize, $20.00—J. H. Shalck, Mfrs. Heat & Light Co., Pittsburg, Pa. Wrinkle No. 128. Apparatus to determine direction of flow.

3rd Prize, $15.00—A. H. Fricker, The East Ohio Gas Co., Youngstown, Ohio. Wrinkle No. 69. Flash-light batteries.

4th Prize, $10.00—H. C. Ballard, Supt. Production, Wichita Natural Gas Co., Bartlesville, Okla. Wrinkle No. 36. Baffle tee drip with automatic blow-off.

5th to 10th Prizes, inclusive, $5.00 each to:

O. M. Baldwin, The East Ohio Gas Co., Kent, Ohio. Wrinkle No. 14. Notice card.

C. C. Hartsough, East Ohio Gas Co., Canton, Ohio. P. Kennedy, East Ohio Gas Co., Cleveland, Ohio. Jointly for Wrinkle No. 5. Adjustable meter support.

A. G. Boyd, Supt., The Ohio Fuel Supply Co. Wrinkle No. 132. Casing cover.

W. E. Nester, Engr., Mfrs. Light & Heat Co., Waynesburg, Pa. Wrinkle No. 100. Magnetic Air Whistle telephone alarm for compressing station.

A. L. Schreider, Pittsburg & West Virginia Gas Co, Clarksburg, W. Va. Wrinkle No. 112. Rule for measuring pipe when piled.

J. J. Buchanan, Foreman Meter Repair Dept., Mfrs. Light & Heat Co., Pittsburg, Pa. Wrinkle No. 141. Adjustable meter prover check.

F. W. Stone,
A. P. Davis,
W. J. Broder,
Committee of Awards for
Wrinkle Department.

## CREDIT DUE MAGAZINE PUBLISHERS.

WE note that at various paper mills there have been advances given to employes whereby 10 to 20 per cent. increases in wages have been allowed. In not a few instances the fact has been pointed to as one doing great credit to the employers. We, however, take exception to this attitude in view of the fact that whereas the publishers of this magazine you are now reading formerly purchased the best grade of paper on which to print its magazines for 4½c per pound, are today paying 10 and 10½ cents per pound, for a grade not as good, though claimed to be the best, as was purchased at the lower price before the prices were advanced.

We, like many other publishers, have not increased our advertising rates, nor have we increased the price covering our subscription, but instead are ourselves bearing this burden.

Where a manufacturer, like, for instance, a paper-maker, puts onto his paper a price of 10 and 10½ cents a pound, versus the price at which he was formerly doing business, and to all appearances at least, getting along comfortably on the earnings of his product, and after having advanced his prices, and after having for months operated under the advanced price, finally increases the salaries of his emloyes 10 to 20 per cent., the credit does not belong with him, but the credit for the better wages of his employes rests with the publisher who stands the increase.

While we have stood this matter of tremendous increase in cost of paper without resorting to extreme criticism, we cannot stand by and see paper-makers applauded for that which is not their due. We therefore speak in behalf of ourselves and our contemporaries, who, like ourselves, are bearing the increase that has been given paper mill workers.

## TERREBONNE, LOUISIANA.

MR. W. H. SEDBERRY of Marshall, Texas, writes that he has just returned from Terrebonne, La., where we know he was special guest of Mr. W. B. McCormick. Mr. Sedberry went to Terrebonne to witness the bringing in of Mr. McCormick's No. 2 well. It came in all right on June 11th, while in less than 30 minutes following these gentlemen had another wild well on their hands, as large as No. 1, which was a "whopper."

Mr. Sedberry says: "Fortunately we had the apparatus which I built to close No. 1 well, therefore the closing of No. 2 was easy picking. Some moving picture men were on the ground, and possibly Pathe will have an interesting news item."

We recounted Mr. Sedberry's experience in the closing in of Mr. McCormick's No. 1 well. This article appeared in the June number of The Natural Gas and Gasoline Journal.

The territory where these two wells are located looks as though it might be very fertile for the gas-man.

# Mixing Gases

***Mixed Artificial and Natural Distribution in Cities — Paper Presented Before 1917 Meeting of Natural Gas Association of America — Also Discussion.***

the latter part of 1913. At that time, varying mixtures were furnished to consumers, but for the most part this mixture varied from 15% to 45% of natural gas.

In the early part of 1914, straight artificial gas was again furnished and continued until the first of August, 1914, at which time the companies commenced to distribute a mixture consisting of 50% natural and 50% artificial gas, which has practically been maintained since that time. This change from artificial gas to gases containing varying amounts of natural gas, up to 50% was done without any inconvenience or complaint from consumers whatever.

On account of the limited amount of natural gas to be obtained it has been deemed best to continue the fifty-fifty mixture up to this time and to sell the surplus gas for industrial purposes. This may be changed by the State Railroad Commission which now has the matter under advisement.

It is most interesting to study the effect on the consumption of gas caused by the increase in heat units in the gas being distributed and for this purpose I draw to your attention Table 1 and Chart "A". This table and chart show that the increase in BTU content of the gas has resulted in a decrease in volume or consumption almost in proportion to the increase in the heating value of the gas: that in the beginning the demand of the average consumer expressed in heat units, was practically constant and that when gas of high heating value is supplied less will be required than when the consumer is furnished with gas of low heating value; that since the introduction of natural gas mixed with the manufactured gas, the BTU consumption has increased slightly, due to the fact that the gas has been put to some new uses.

TABLE 1.

CONSUMPTION PER ACTIVE METER PER YEAR.

| *Years.* | *Cubic Feet.* | *B. T. U.* |
|---|---|---|
| 1912 | 35,022 | 21,844,000 |
| 1913 | 32,466 | 21,005,000 |
| 1914 | 31,068 | 22,867,000 |
| 1915 | 30,059 | 25,092,000 |

FOR MONTHS OF JUNE, 1914, AND JUNE, 1915, IN CUBIC FEET AND B. T. U's.

| | *1914.* | *1915.* |
|---|---|---|
| June cu. ft. | 2705 | 2183 |
| June B. T. U. | 1,740,285 | 1,773,000 |

Comparing the year 1915 with the year 1912 there has been a reduction in the rate of 15% and an increase in the BTU content of the gas of 30% resulting in each consumer receiving 53% more heat per dollar in 1915 than he received in 1912. This decrease in rate has been accomplished by an increase in BTU consumption of only 15%. The table also shows the consumption in cubic feet and BTU's for the month of June, 1914, compared with the month of June, 1915. During 1914 we were distributing unmixed artificial gas and in 1915 we were distributing a mixture of 50% natural and 50% artificial. The results are very striking.

As a further comparison of the effect of the increase in these heat units, I call your attention to Table 2, Chart "B", showing the monthly consumption per meter in cubic feet and in BTU's for the years 1912 and 1915. This table and chart also show that the consumption in the month of September, which is usually the month of the lowest consumption is in the year 1915 about 46% of the consumption in the month of January, whereas in eastern cities in the month of August, which is the month of low consumption, it is only 17% of the January consumption.

TABLE 2.

COMPARATIVE CONSUMPTION PER ACTIVE METER IN CUBIC FEET AND BRITISH THERMAL UNITS—YEARS 1912 AND 1915.
CITY OF LOS ANGELES.

| Month. | 1912. Mfg. Gas Cu. Ft. | 1912. B. T. U. | 1915. Mixed Gas Cu. Ft. | 1915. B. T. U. |
|---|---|---|---|---|
| January | 3935 | 2,463,000 | 3847 | 3,175,000 |
| February | 3408 | 2,105,000 | 3429 | 2,738,000 |
| March | 3278 | 1,978,000 | 3036 | 2,453,000 |
| April | 3307 | 1,778,000 | 2591 | 2,073,000 |
| May | 2811 | 1,574,000 | 2649 | 2,151,000 |
| June | 2522 | 1,408,000 | 2183 | 1,773,000 |
| July | 2253 | 1,477,000 | 2001 | 1,650,000 |
| August | 2406 | 1,485,000 | 1820 | 1,479,000 |
| September | 2389 | 1,662,000 | 1784 | 1,451,000 |
| October | 2578 | 1,839,000 | 1998 | 1,604,000 |
| November | 2842 | 2,081,000 | 2512 | 2,030,000 |
| December | 3302 | 1,904,000 | 3109 | 2,512,000 |
| Total | 35022 | 21,844,000 | 30359 | 25,092,000 |

The rates charged in the city of Los Angeles have been as follows:

Just previous to July, 1911.....80 cents
July, 1911, to July, 1912.....75 cents
July, 1912, to July, 1913.....70 cents
July, 1913, to date.....68 cents

The reason for comparing 1912 to 1915 is that 1912 was the last full year that straight artificial gas was supplied, and 1915 was the first full year that the mixture of 50% natural and 50% artificial gas was served.

TABLE 3.

COMPARATIVE MONTHLY MEAN MINIMUM ATMOSPHERIC TEMPERATURES AND GAS CONSUMPTION PER ACTIVE METER—MIDDLE WESTERN CITY AND CITY OF LOS ANGELES.

| | Consumption Per Month Per Active Meter | | Monthly Mean Minimum Atmospheric Temperatures | |
|---|---|---|---|---|
| | Middle Western City | Los Angeles | Middle Western City | Los Angeles |
| January | 16,000 | 3,175 | 20.8° F. | 48.2° F. |
| February | 15,600 | 2,738 | 18.5 | 47.5 |
| March | 14,000 | 2,453 | 29.8 | 52.0 |
| April | 11,000 | 2,073 | 47.0 | 53.3 |
| May | 6,000 | 2,151 | 58.2 | 53.2 |
| June | 5,000 | 1,773 | 65.5 | 57.4 |
| July | 3,000 | 1,650 | 71.4 | 61.0 |
| August | 3,000 | 1,479 | 73.5 | 61.7 |
| September | 4,000 | 1,454 | 60.4 | 58.9 |
| October | 6,000 | 1,604 | 45.8 | 54.0 |
| November | 13,000 | 2,030 | 44.3 | 51.6 |
| December | 14,000 | 2,512 | 29.8 | 48.7 |
| | 110,000 | 25,092 | | |

I now call your attention to Table 1 and Chart 1 which show the consumption per active meter in a [illegible] western city and in Los Angeles together with the monthly mean atmospheric temperature for these two cities. The monthly mean minimum temperature means, of course the average of the minimum temperature each day

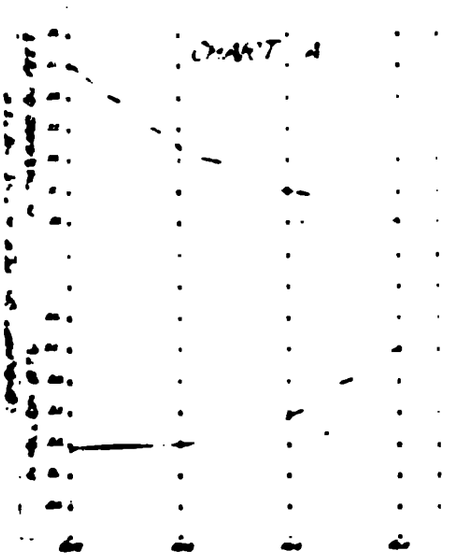
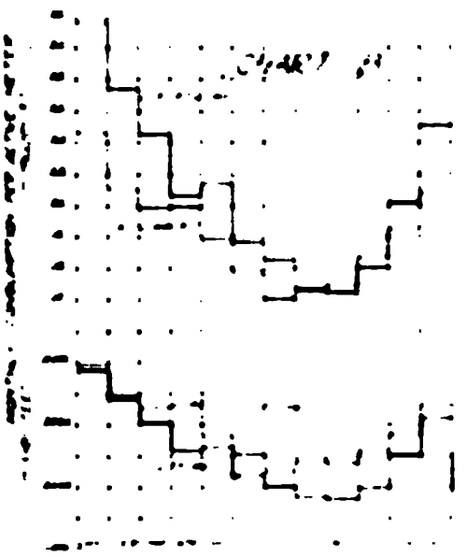


Chart 1

[illegible] plants seems to have been when natural gas was turned on the district of smoke and [illegible] the smoking stacks. When natural gas was [illegible] the [illegible] was the same and the [illegible] was the reduction in the heating value



[illegible]

The amount of gas being passed through the mixer was approximately 25,000 cu. ft. per hour. This mixer was also tested out passing 18,000 up to 30,000 cu. ft. per hour, and on pressures varying from 5 pounds to 40 pounds, and it seemed to mix the gas perfectly.

The meters used to measure the artificial and natural gas in the mixture were of the orifice type, which we use almost entirely for measuring high pressure gas throughout our system, and which we find to be most satisfactory.

In order to prove the effectiveness of our apparatus as designed for mixing natural and artificial gas, the heat units of the two gases being mixed were first determined, and then several tests were run on the gas after it was mixed in different proportions, and in each case the heat units obtained from the mixed gas corresponded to the heat units of its component parts. This is shown in Table 4.

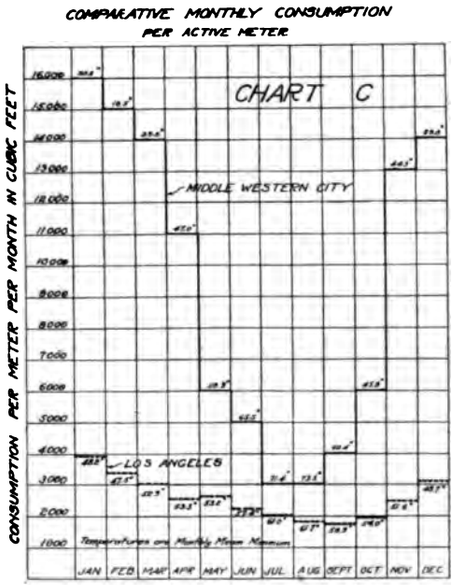



**TABLE 4.**

| Test No. | Art. Per Cent. | Nat. Per Cent. | B. T. U. Comp. | B. T. U. Cal. | Error of Comp. B. T. U. | S. P. Gravity Comp. | S. P. Gravity Mach. | Error of Comp. |
|---|---|---|---|---|---|---|---|---|
| 1 | 56.3 | 43.7 | 788 | 810 | 2.8 less | ... | ... | |
| 2 | 51.6 | 48.4 | 823 | 826 | 0.3 less | ... | ... | |
| 3 | 79.2 | 20.8 | 592 | 597 | 0.8 less | ... | ... | |
| 4 | 67.5 | 32.5 | 669 | 678 | 1.3 less | ... | ... | |
| 5 | 59.8 | 40.2 | 767 | 808 | 5.3 less | .542 | .540 | .03 of 1 hi. |
| 6 | 45.4 | 54.6 | 874 | 899 | 2.8 less | .575 | .567 | 1.3 higher |

All tests were made with Hinman-Junkers calorimeters and the heat units reported are the gross heat units. Fig. 3 is a photograph showing the mixer, pipe systems, gauges, appliances, etc., used in the experiment and Fig. 4 is a side view showing in more detail the appliances used, including the arc lamps.

The top burners of all the ranges used and two of the oven burners are shown in Fig. 5. Each top burner had an adjustable air shutter and an adjustable gas orifice. The oven burners of these ranges were made of cast iron with drilled holes. They differed only in the arrangement and in the location of the holes.

The oven burner for No. 1 range extended from side to side under the center of the oven. A row of holes was drilled along each side at an angle of 45 degrees upward; this is the upper oven burner in the illustration.

On range No. 2 the oven burner extended from front to rear along the center of the oven: it had a row of holes on each side at an angle of 45 degrees upward.

No. 3 had a burner along each side under the oven extending from front to rear. Each burner had one row of holes drilled so that the flame would be thrown toward the center at an angle of about 45 degrees upward.

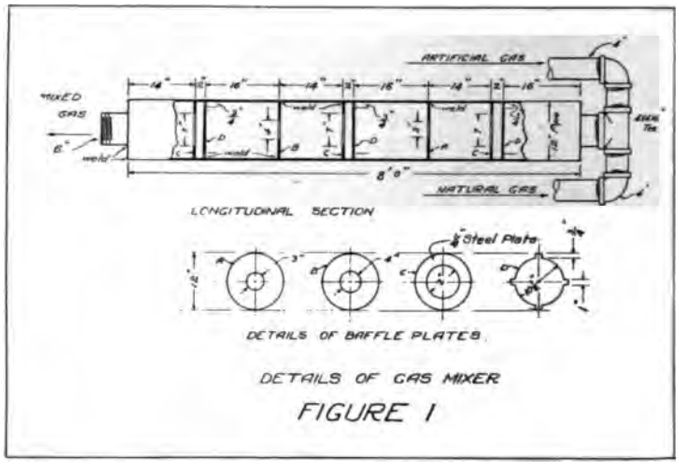


FIGURE 1

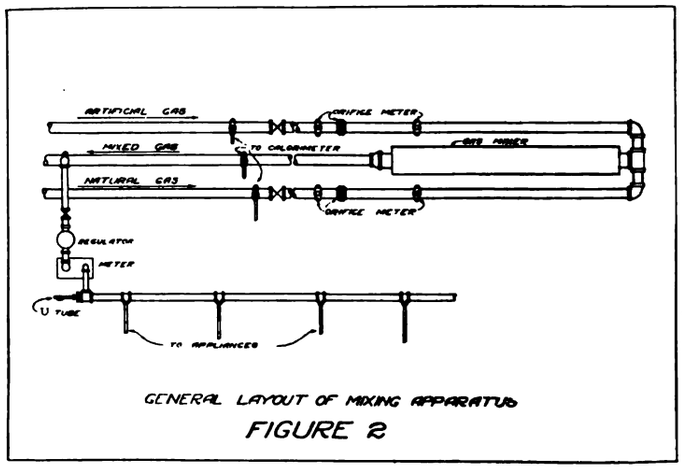


FIGURE 2

No. 4 had an oven burner in the form of two cast iron pipes one behind the other. Both had a row of holes drilled on each side so that the flame pointed 45 degrees downward.

Burners No. 5 and 6 were for the same range, the oven burners for this range were in the form of two cast iron pipes, one behind the other, each with two rows of holes pointed 45 degrees upward.

The burners for the water heaters are shown in Fig. 6. No. 1 had an adjustable mixer but no adjustable gas orifice. The others had both an adjustable air mixer and an adjustable gas orifice.

The Armour furnace burner which is of local design has an adjustable air shutter. It also has a very large

mixing chamber. The burner of the other furnace shown in picture is a ring about 18 inches in diameter made of ½" pipe; the holes are drilled on the inside. It has an adjustable air shutter but no adjustable gas orifice, and is a very cheap affair.

The Hawks radiator has an adjustable air shutter and an adjustable gas orifice. The burner is a cast iron pipe with holes drilled in the upper side. The Detroit Jewel Heater has a double burner made of cast iron, with holes drilled in the upper side. Balls of fire clay about 3" in diameter are laid above the burners. These act as lafflers and also retain the heat as well as aid combustion.

much the mixture could be changed before it was noted in the combustion.

An observer was stationed to watch each burner and report the first change of flame. These observers were reliable men representing three gas companies. As artificial gas was added, the first change in flame was noted at 70% artificial gas and 30% natural. This was for top burners No. 2 and No. 3. These, we might state, are not sold by gas appliance companies, but are sold by furniture companies when they furnish a house complete for $98.00. These burners are pressed sheet iron and have not sufficient open space on the inside.

FIG. 111.—MIXER AND PIPE SYSTEM.

The lights used were three mantle Humphrey and a four-mantle Welsbach, both indoor arcs.

The tests on the above mentioned appliances were run for three different conditions as follows:

*First:* The burners of all appliances were adjusted for a mixture of

Artificial gas..... 50%
Natural gas ..... 50%

The gas used was artificial of 674 BTU's and natural of 1,306 BTU's. The mixture was gradually changed by adding more of either gas. The object was to find how

When a mixture of 80% artificial and 20% natural was reached, all observers had noted a change in flame.

When the natural gas was increased, the first change was noted at about 68% natural and 32% artificial. In other words, it takes a change of from 18% to 30% either way in the mixture before it can be noticed in combustion rather than a larger or smaller flame. The effect of a change in mixture will be taken up in other tests.

*Second:* The burners on all appliances were adjusted for a 50% artificial and 50% natural gas mixture. The

close observation. In general, the flame was slightly reduced.

The mixture was then changed to

Artificial ..... 18%
Natural ..... 82%

This gave a gas of 1082 BTU'S. The flames were slightly decreased with less yellow, but all were burning well. The artificial gas burners were burning slightly better and showed considerable improvement as more artificial gas was added.

The artificial gas was then changed to 674 BTU's, and the mixture was

Artificial ..... 30%
Natural ..... 70%

This gave a gas of 1048 BTU's. The flames all burned well but reduced to a greater degree.

The next test was

Artificial ..... 52%
Natural ..... 48%

This gave a gas of 929 BTU's. The result of this on the various appliances was in the same direction as the preceding, but more pronounced.

The next was

Artificial ..... 75%
Natural ..... 25%

This gave a gas of 722 BTU's, with similar results to the above. The flames all burned slightly lower.

The next was

Artificial .....100%
Natural ..... 0%

The burners were all burning 674 BTU's artificial gas. The stoves were all burning low, but otherwise good, and showed no tendency to backfire.

The next test was for

Natural gas .....1200
Artificial gas ..... 608

The aim was to see if burners set for natural gas of 1200 BTU's would backfire on 600 BTU gas. The burners were all set for straight natural gas and a quick change was made to artificial gas, but there was no backfire. The burners were then turned off and all would light without difficulty. When this same test was made with 540 BTU's gas, there was a tendency in many of the burners to backfire, especially burners marked No. 2 and No. 3 in Fig. V, and many of the oven burners backfired with the mixture.

When we first began the introduction of natural gas, it was noticed that the admixture of natural gas with artificial materially increased the illuminating effect of the ordinary open flame burner, and in order to determine definitely what various proportions of natural gas would do to the illuminating power of the mixed gas when used in open flame burners, tests as per Table 5 were very carefully made in the following manner:

A five-foot Maryland meter prover was equipped with a double set of tin paddles revolving in opposite directions, somewhat in imitation of an egg-beater, for the purpose of thoroughly mixing the two gases. The required quantity of natural gas was accurately measured in the prover and the necessary amount of artificial gas was added to it.

To check all of the tests shown in the Table, the method of procedure was reversed,—that is, the artificial gas was first measured in the prover, and the natural gas followed. Heat units and candle power were taken for each variation of percentage of natural gas, and the BTU as well as the candle power is an average of the ten readings.

The candle power of the artificial gas at the time of these tests was 18.5 and that of the natural gas was 8.4 candles. It will be noticed that a general increase in illuminating power took place with the mixture of 5% natural up to the point when 35% natural was reached; thereafter a drop took place down to 70% natural. From 70% to 95% no tests for BTU were taken and the candle power determination was made rather difficult by reason of the streakiness and flickerings of the flame.

**TABLE 5.**

EFFECT OF MIXED GASES ON CANDLE POWER AND HEAT UNITS.

| Per Cent. of Artificial | Per Cent. of Natural | Per Cent. of Mixture | Candle Power | B. T. U.'s |
|---|---|---|---|---|
| 100 | ... | ... | 18.5 | 620 |
| ... | 100 | ... | 8.4 | 1055 |
| 95 | 5 | 100 | 19.1 | 631 |
| 90 | 10 | 100 | 19.7 | 658 |
| 85 | 15 | 100 | 20.2 | 685 |
| 80 | 20 | 100 | 21.0 | 701 |
| 75 | 25 | 100 | 21.1 | 724 |
| 70 | 30 | 100 | 21.2 | 753 |
| 65 | 35 | 100 | 21.5 | 768 |
| 60 | 40 | 100 | 21.0 | 791 |
| 55 | 45 | 100 | 20.0 | 809 |
| 50 | 50 | 100 | 19.3 | 839 |
| 45 | 55 | 100 | 18.2 | 861 |
| 40 | 60 | 100 | 17.7 | 878 |
| 35 | 65 | 100 | 17.3 | 904 |
| 30 | 70 | 100 | 16.4 | 917 |
| 25 | 75 | 100 | 15.3 | |
| 20 | 80 | 100 | ... | |
| 15 | 85 | 100 | 14.1 | |
| 10 | 90 | 100 | ... | No test for B. T. U'S. |
| 5 | 95 | 100 | 13.0 | |
| ... | ... | ... | 11.2 | |
| ... | ... | ... | 9.1 | |

NOTE: I wish to state that I have been greatly assisted in preparing this paper by Mr. F. J. Schafer and Mr. B. G. Williams, who are responsible for most of the work done in connection with it.

## DISCUSSION.

President Guffey: In the discussion of this paper I am going to call on one of the youngest members of our association who has only joined within the last month and who for the past four or five months has been giving considerable attention to this matter, having made a study of the situation for two of the natural gas companies in Western Pennsylvania. I want to introduce to you Mr. Warren S. Blauvelt, Consulting Engineer, Detroit, Michigan.

Mr. Warren S. Blauvelt: This paper is one which seems to me cannot fail to interest every man who is engaged in the gas business, whether artificial or natural. Men engaged in the artificial gas business in many localities are very much interested in the possibility of having to solve the same problems which

burner has upon the efficient utilization of the calorific power of the gas. Oftentimes very low pressures result in a greater waste of gas than a moderate reduction in the calorific power of that gas. If you maintain the pressure and have a slight reduction in calorific power, you will have a better pleased customer than if you maintain the calorific power of the gas, but fail to maintain the pressure at the burner. There is no question that the Public Utilities Commissions will eventually insist upon the maintenance of reasonable standards of pressure regulation, and it behooves all forward looking men in the industry to get ready for it and to "beat them to it." There is one feature, to anyone coming into the natural gas business from the artificial gas business that is very impressive, and that is the ridiculously low prices, from the artificial gas man's point of view, which natural gas men have been willing to accept for their product. This has unquestionably resulted in very great wastes of gas which historians will denominate as almost criminal.

One of the things which was brought out in the paper that is very striking is the very slight seasonal variation in gas delivery at Los Angeles. In that land of sunshine there seems to be sunshine for the consumer, for the gas company, and for everybody else. Instead of having a variation as in eastern cities of from four to one or five to one, as in the case mentioned, there is a variation of something like two to one. There is possibly still a great deal of work to be done in Los Angeles, in the way of increasing the summer load with industrial work, but the field for that is not nearly as great as it is in eastern cities. I believe that there is going to be a great deal of work done in the immediate future in the building of throw-over plants which will be operated probably with some kind of artificial gas in the winter time and with natural gas in the summer time thus making it possible to utilize existing pipe lines and compressing stations at a higher average of efficiency throughout the year equalizing the load and yet relieving the natural gas companies from the excessive winter peaks. I believe there are very few lines of work which look more promising. How this work will be done whether the individual consumer will install local plants or whether the gas companies themselves will install local plants at points of distribution merely to carry the winter load and arrange for a definite charge for the winter load with artificial gas and then a rate for natural gas during the summer months, the future alone can determine; but something of that sort seems to be plainly indicated as the proper economic answer to the best utilization of an existing investment, together with the most economical supply of fuel to these industries. Having once been educated to use gas and to appreciate its very great advantages, consumers hesitate a long while before they will go over to solid fuel with its many disadvantages. The industry as a whole is certainly very greatly indebted to the author of this paper and his assistant, Mr. Shafer, for having gone into the matter so much in detail and given us so much that will help all of us in the solution of these problems which confront some of us now and which are bound to confront everybody in the natural gas business sooner or later.

President Guffey: We would like to hear from Mr. John H. Maxon, President and General Manager, The Central Indiana Gas Company, Muncie, Indiana. Mr. Maxon has had considerable experience in the artificial gas business. We would like for him to come forward if he will and discuss this all-important topic.

Mr. John H. Maxon: I have attended a number of gas conventions recently, and when men are unexpectedly called on I have heard them get up and say "I don't believe I can add anything to the interesting and valuable remarks which have already been made," and then launch out into an extended talk. I think probably it would be better to do what I will do right now and that is when unexpectedly called on, to get up and say that I am interested in this important subject and I have something to say about it, but I am going to be brief.

I have had the pleasure of going over this Los Angeles territory in its entirety and, therefore, this paper has been of special interest to me. I want to call attention particularly to the fact that in that territory there is probably being collected more money per million B. t. u.'s for natural gas than any other place in this country. It appears that the 190,000 consumers in Los Angeles proper are paying about $21.00 per annum for about 31,000 feet of 800 B. t. u. gas, which means 25,000,000 heat units and which brings 84 cents per million heat units. That is the Los Angeles operation. The interests I represent serve 42,000 consumers and thirty towns outside of Los Angeles, and the service there is straight natural gas from both the Midway Company and the Whittier-Fullerton Field. The price per B. t. u. is about the same as for 800 B. t. u. gas. When the manufacture of oil gas was discontinued, the same prices were continued, namely, for the first 25,000 feet, about one dollar per thousand for about 1100 B. t. u. gas. Then the rate was dropped to 30 cents, and so in both cases in that district the price per million B. t. u.'s is nearly the same.

The artificial gas business, serving about eight million consumers in the United States, is delivering about 28,000 cubic feet per annum per consumer of 600 B. t. u. gas which means the delivery of about 17,000,000 B. t. u. gas per consumer per annum for $21.00 which means about $1.25 per million B. t. u's, so you see in the Los Angeles operation they are coming up nearer artificial gas practice per million B. t. u.'s. To bring out the comparison still further, it may be said in the State of Ohio that there are 800,000 natural gas domestic consumers who are paying about 28 cents per million B. t. u.'s.

In regard to the mixing of gases it has been exceedingly interesting to hear what Mr. Blauvelt had to say. I will say that I have had some experience

from less than 100 B. t. u.'s per 1000 feet up to 1100 B. t. u.'s per 1000 feet in the same field, but from different sands. The question of utilization first became a commercial factor in 1914 when a field of this character, in which the gas ranged as low as 550 heat units, was turned into the main line where it mixed with gas which averaged about 950 heat units and causing various degrees of mixture to suddenly appear in the various cities furnished from the line. In extreme cases the gas went a little below 800 heat units, but varied above and below an average of about 820.

The fact that the gas from the new field was below standard had never been suspected until complaints from consumers brought to light the fact that something was seriously wrong. A difference of a little more than 100 heat units had an effect on the combustion a great deal more serious than that experienced by Mr. Macbeth in the case which he referred to, varying from 600 to 1200 b. t. u.'s. It resulted in difficulties with burners and appliances and the consumers registered vigorous complaints and finally the controversy was thrown into the courts. It was taken before the Public Utilities Commission and there was more or less litigation extending over a period of two years out there. As nearly as I can see it the feature that was in Mr. Macbeth's favor as compared with the situation in Kansas is that this artificial gas, differing in its composition from natural gas; that is, containing appreciable quantities of carbon monoxide and olefine, both of which are quick burning gases of high flame temperature and high rate of flame propagation, but low in heat units. Thus in replacing a certain amount of natural gas with gas of this charatcer, the result would be a quicker, hotter flame or a fire in which a very similar result would be obtained by burning a larger quantity of gas to that obtained from pure natural gas.

In the gas found in Kansas of lower heating value, this lower value is caused by the dilution of the natural gas with a certain amount of nitrogen. Natural gases are normally slow burning gases and the dilution with nitrogen tends to still further decrease the rate of flame propagation and make them slower burning than the natural gas, so that the net result out there is that a difference of from 35 to 40 heat units, variation will be accompanied by a series of complaints from consumers who encounter serious difficulties, whereas, Mr. Macbeth can get by with a variation of two to three hundred without any great inconvenience to the consumer. Therefore, I say this has become a commercial factor in Kansas and has brought about a movement which will eventually in that state, I believe, cause gas to be sold on the basis of heat units rather than by the cubic feet. This same difficulty may occur in other states and if so the quality of the mixture must be controlled with very narrow limits as suggested, for the burners and appliances are adjusted to natural gas of the kind we have previously been accustomed to employ and will not stand the wide variation in mixing natural gas with nitrogen dilution which from Mr. Macbeth's experience can be very safely used in mixed artificial gas.

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Other papers presented at the Natural Gas Association meeting together with the discussions that followed, will be published in subsequent issues of this magazine.

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## DAYTON PIPE COUPLING INTERESTS.

The interests of the Dayton Pipe Coupling Company have been taken over by the National Supply Company of Pittsburgh and Toledo, though the manufacturing of the output of the Dayton Pipe Coupling Company will remain at Dayton, Ohio, while the selling of the product of that branch of the enterprise will be in the able hands of Frank W. Miner, of Pittsburgh, Vice-President of the National Supply Company, and Vice-President also of the Dayton Pipe Coupling Company.

Mr. Miner's ability in developing sales, has received appreciation through the confidence that has been accorded on the part of not only the buyers of the field, but those in positions of trust in other manufacturing enterprises of the industry.

Mr. William W. Price, former President of the Dayton Pipe Coupling Company remains President of that division of the National Supply Company's interests, specifically in charge of manufacturing operations of the Dayton Pipe Coupling section at Dayton, Ohio, while Mr. Charles R. Clapp is Secretary and Treasurer, and is in charge of the finances of the Dayton Company.

The Company will maintain the well known high standard of product that has placed its couplings in the forefront, and the concern will carry on hand a large and complete assortment of "Dayton" couplings, "Dayton" collar leak clamps, malleable saddles, and "Dayton" specialties, the purpose being to render instant service from that geographically well located city, Dayton, while the stores of the National Supply Company are located in practically every oil and gas field.

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## INVESTIGATION SHOWS GAS TUBING UP TO STANDARD.

The question arises, was the Atlantic Tubing Company, which manufactures that tubing known as "Gaspruf," responsible for setting the pace for the American Gas Institute and National Commercial Gas-Association in the drawing up of flexible tubing specifications that have become the standard in those two organizations, or is it a coincidence that the specifications and the "gaspruf" tubing, come under one and the same head without a necessity for the manufacturers of that tubing to deviate in the least from their method of making this tubing. This is a make that has become widely known, not only, but is generally used where gas companies prize the safety of the people of their communities and the good name of the gas company.

At any rate, it is a fact that the specifications and this tubing as made, harmonize in every respect.

# West Virginia Producers Ass'n.

*A Dependable Statement Regarding the Oil and Gas Association of West Virginia By Its Secretary In Answer to the Editor's Inquiry.*

ably assessed and that their wealth-creating business, so hazardous to investment, be not penalized by unjust and discriminatory legislation.

The Association met with a great misfortune during the present year in the death of its President, Hon. F. B. Enslow, of Huntington, W. Va., a courtly gentleman of great ability and lovable personality. Until his death, he was in frequent attendance at the last session of the Legislature in behalf of the Association.

Our next annual meeting is scheduled for the last week in September, exact time and place not yet decided.

In all our activities we see and feel the helpful influence of the splendid oil and gas journals, so faithfully devoted to the interests of the business and so ably promoting its best interests.

Yours very truly,

JOHN L. MULLEN,
Secretary.

Oil and Gas Producers' Association of West Virginia.

## THRALL OIL FIELD.

THE Bureau of Economic Geology of the University of Texas has just issued a report on the Thrall Oil Field. This field was discovered three years ago, in Williamson County, and it proves to be unique for the United States, the greater part of the production coming from a metamorphic chlorite derived from an extremely basic igneous rock. This rock apparently represents a submarine eruption in the Cretaceous sea.

Copies of the report, which is written by J. A. Udden, H. P. Bybee, E. P. Schoch and W. T. Read, covers 3 octavo pages, and contains seven plates and seven figures, can be obtained from the Bureau of Economic Geology, University of Texas, Austin, Texas.

## STANDARD OIL SUBSIDIARIES.

BY JO. P. CAPPEAU SONS.

**June 1st to June 20th, Inclusive.**

| | | Open | High | Low | Last |
|---|---|---|---|---|---|
| £1 | Anglo-American .... | 17½ | 20 | 17½ | 20 |
| $100 | Atlantic Ref. ..... | 950 | 950 | 900 | 900 |
| 100 | Borne-Scrymser .... | 420 | 420 | 410 | 410 |
| 50 | Buckeye Pipe ..... | 101 | 101 | 94 | 96 |
| 100 | Chesebrough ..... | 400 | 400 | 380 | 380 |
| 100 | Colonial ..... | 50 | 50 | 50 | 50 |
| 100 | Continental ..... | 520 | 530 | 500 | 500 |
| 50 | Crescent ..... | 37 | 37 | 35 | 35 |
| 100 | Cumberland ..... | 160 | 160 | 155 | 155 |
| 100 | Eureka ..... | 205 | 205 | 200 | 200 |
| 100 | Galena Com. ..... | 152 | 152 | 146 | 146 |
| 100 | Galena Pref. ..... | 138 | 138 | 135 | 135 |
| 100 | Illinois Pipe ..... | 213 | 213 | 211 | 211 |
| 50 | Indiana Pipe ..... | 98 | 98 | 93 | 93 |
| 12½ | National Transit ... | 15 | 15 | 14 | 14 |
| 100 | New York Transit.. | 190 | 190 | 185 | 185 |
| 100 | Northern Pipe ..... | 100 | 105 | 92 | 92 |
| 25 | Ohio Oil ..... | 360 | 360 | 348 | 348 |
| 100 | Prairie Oil ..... | 540 | 540 | 380 | 390 |
| 100 | Prairie Pipe Line... | 293 | 298 | 255 | 265 |
| 100 | Solar Refining ..... | 325 | 325 | 320 | 320 |
| 100 | Southern Pipe ..... | 195 | 195 | 190 | 190 |
| 100 | South Penn Oil..... | 295 | 298 | 280 | 280 |
| 100 | Southwest Penn Pipe | 110 | 110 | 105 | 105 |
| 100 | S. O. of California.. | 270 | 270 | 257 | 257 |
| 100 | S. O. of Indiana ... | 760 | 760 | 725 | 725 |
| 100 | S. O. of Kansas .... | 450 | 450 | 440 | 440 |
| 100 | S. O. of Kentucky.. | 325 | 335 | 320 | 320 |
| 100 | S. O. of Nebraska... | 510 | 510 | 480 | 480 |
| 100 | S. O. of New Jersey | 625 | 625 | 595 | 595 |
| 100 | S. O. of New York. | 295 | 295 | 278 | 278 |
| 100 | S. O. of Ohio ..... | 420 | 420 | 410 | 410 |
| 100 | Swan & Finch..... | 90 | 90 | 90 | 90 |
| 100 | Union Tank ..... | 93 | 93 | 90 | 90 |
| 100 | Vacuum Oil ..... | 370 | 380 | 340 | 340 |
| 10 | Vacuum Oil ..... | 25 | 25 | 25 | 25 |
| 25 | Penn-Mex. ..... | 48 | 48 | 48 | 48 |
| 5 | Internat'l Petroleum. | 14⅛ | 14⅛ | 13 | 13 |
| | **Independent Oil Companies.** | | | | |
| 100 | Cities Service Corp.. | 280 | 286 | 280 | 282 |
| 25 | Pierce Oil ..... | 12¾ | 12¾ | 12 | 12¼ |
| 50 | Midwest Refining .. | 134 | 135 | 131 | 131 |
| 25 | Tropical Oil ..... | 8 | 8¼ | 8 | 8¼ |
| 5 | Cosden Refining .... | 13⅛ | 13¼ | 12⅜ | 12⅜ |
| 5 | Sapulpa Refining ... | 9¾ | 9⅞ | 9½ | 9¾ |
| 5 | Cosden Oil & Gas Com. ..... | 13 | 13 | 12¼ | 12¼ |
| 5 | Cosden Oil & Gas Pfd. ..... | 4¾ | 4¾ | 4⅝ | 4⅝ |
| 5 | Okla. Producing & Refining ..... | 10½ | 10⅞ | 10⅜ | 10⅜ |
| 5 | Atlantic Petroleum.. | 6½ | 6¾ | 6½ | 6½ |
| 10 | Merritt Oil ..... | 28¼ | 28½ | 26 | 26 |
| 1 | Midwest Oil ..... | 80 | 82 | 77 | 77 |
| 5 | Osage-Hominy Oil.. | 8⅝ | 8⅞ | 8½ | 8½ |

## FINANCIAL REPORT.

BY JO. P. CAPPEAU SONS.

**June 1st to June 20th, Inclusive.**

| Stocks | Sales | Open | High | Low | Last |
|---|---|---|---|---|---|
| Caney River Gas..... | 435 | 48¼ | 49¼ | 48¼ | 48⅛ |
| Columbia G. & E..... | 100 | 42¾ | 41¼ | 41¼ | 41¼ |
| Fayette Gas ..... | ... | ... | ... | ... | 121 |
| Mfg. L. & H..... | 1795 | 66 | 66¼ | 63¼ | 64⅞ |
| Ohio Fuel Supply..... | 1878 | 49⅞ | 50 | 48¼ | 48¼ |
| Ohio Fuel Oil..... | 753 | 19¼ | 19⅛ | 18⅞ | 19 |
| Oklahoma Gas ..... | 155 | 99¼ | 99¼ | 99¼ | 99¼ |
| Osage & Oklahoma... | 120 | 130 | 131 | 131 | 131 |
| Pgh. Oil & Gas..... | 5050 | 5½ | 5⅞ | 5⅜ | 5½ |
| Pure Oil Com..... | 7315 | 23¼ | 23⅞ | 23⅝ | 23⅝ |
| Cent. Kentucky Gas... | ... | ... | ... | ... | 22 |
| Kansas Gas ..... | ... | ... | ... | ... | 35 |
| Lone Star Gas..... | 365 | 96 | 99¼ | 98½ | 98 |
| Union Gas ..... | 118 | 172 | 172 | 171 | 171 |

# RESULTS OF DRILLING--LATEST REPORTS

## PENNSYLVANIA FIELD

### ALLEGANY FIELD

### BRADFORD FIELD

### MIDDLE FIELD

### SOUTHWEST PENNSYLVANIA

## WEST VIRGINIA

Wood County—
Richardson, S. P. Oil 12 ..... Dry
Grant, Byers & Co. 1 ..... Dry
Ritchie County—
Marburger Tract, Woodland Oil 5 ..... Dry
Congleton Estate, Hudson Oil 3 ..... Dry
Darnold, I. O. & G. P. 4 ..... Gas
Hammons, Freehold O. & G. 2 ..... Dry
Arnett, Carter Oil 2 ..... Dry
McGinnis, Chalmers O. & G. 4 ..... Dry
Wells, I. O. & G. P. 1 ..... Dry
Wirt County—
Rathbone Tract, Roberts Bros. 103 ..... Dry
Rathbone Tract, Roberts Bros. 104 ..... Dry
Pleasants County—
Russell, River Oil 5 ..... Dry
Cooley-Barker, Peoples Gas Co. 1 ..... Dry
Riggs, Taylor & Dye 1 ..... Dry
Riggs, Sloan & Co. 2 ..... Dry
Pethel, W. A. Clark & Co. 1 ..... Dry
Calhoun County—
Knotts, Hope Gas ..... Gas
Ball, G. L. Cabot 4 ..... Gas
Roane County—
Whited, U. F. G. 1 ..... Dry
Whited, U. F. G. 2 ..... Dry

Dry ..... 31
Gas ..... 25

## SOUTHEASTERN OHIO.

Woodsfield—
Ackinson, Myers O. & G. 1 ..... Dry
Oblinger, Taylor & Co. 1 ..... Gas
Craig, De Long & Co. 1 ..... Gas
New Matamoras—
Miller, Taylor & Dye 1 ..... Gas
Fulmer, Hunt & Co. 4 ..... Dry
Rinards Mills—
Hearington, W. S. Sykes 1 ..... Dry
Perry County—
Griggs, Carter Oil 1 ..... Dry
Donley, National Oil 1 ..... Dry
Hocking County—
Gem Coal, O. F. S. Co. 1 ..... Dry
Donaldson, O. F. S. Co. 1 ..... Gas
N. F. P. Co., Haydenville Oil 14 ..... Gas
Knox and Holmes—
Fry, Logan O. & G. 1 ..... Dry
Fairfield County—
Kilpatrick, Ohio Cities Gas 1 ..... Dry
Macksburg—
Eagler, B. M. Eagler & Co. 3 ..... Dry
Way, E. J. Allshouse 2 ..... Dry
Ullman, J. W. Bremier 6 ..... Dry
Crock, B. N. Greene & Co. 6 ..... Dry
Shaffer, Patton & Co. 1 ..... Dry
Noble County—
Bregg, Berry Rich & Co. 1 ..... Dry
Johnson, W. C. Harper & Co. 1 ..... Dry
Cathwell, Worrall & Co. 1 ..... Dry
Athens County—
Cook, G. F. Evans 1 ..... Dry
Morgan County—
Green, Kamerer 1 ..... Dry
Graham, Equity O. & G. 17 ..... Dry
VanFossen, Penn. O. & G. 37 ..... Dry
VanFossen, Penn. O. & G. Co. 38 ..... Dry
Marietta—
Hervey, D. A. Stewart & Co. 15 ..... Dry
Nicholson, C. H. Mervin & Co. 1 ..... Dry
Codry, Matamoras O. & G. 1 ..... Gas
Toner Oil, Calvin A. Peavey 50 ..... Dry
Manhan hrs., C. F. Casper 6 ..... Dry
Angus, Angus Oil 1 ..... Dry
Rice hrs., J. G. Rice & Co. 10 ..... Dry
Vaughn, Holinger & Lutton 1 ..... Dry
Henry L. Stephens 1 ..... Dry
Lyda L. Stephens 1 ..... Dry
Starling, Black & Archer 4 ..... Dry
Decker, W. A. Decker & Co. 7 ..... Dry
Harrison County—
Smith, U. S. A. Oil 1 ..... Dry
Welch, McCombs Oil 1 ..... Dry
Tuscarawas County—
Sproul, Wilson & Co. ..... Dry
Butler, Penn. Tex Oil 1 ..... Dry
Pearch, Winner Oil 1 ..... Gas
Carroll County—
Puchanna, Schmidt & Co. 2 ..... Dry
Boyd, Pop Corn Oil 2 ..... Dry
Erwin, W. C. Kennedy Co. 1 ..... Dry
Jewell, N. G. Co. 1 ..... Gas
Columbiana County—
Mangus, Pittsburgh Parties 1 ..... Dry
Belmont County—
Douglass, O. F. S. 1 ..... Dry
Creamer, N. G. of W. Va. 5 ..... Dry
Neff, H. J. Gallagher & Co. 1 ..... Gas

Dry ..... 42
Gas ..... 9

## PENNSYLVANIA FIELDS.

### SUMMARY OF COMPLETED WORK.

| Field. | Comp. | Prod. | Dry. | Gas |
|---|---|---|---|---|
| Allegany | 24 | 52 | 1 | 2 |
| Bradford Field | 40 | 107 | 1 | 3 |
| Middle Field | 28 | 33 | 4 | 5 |
| Venango-Clarion | 81 | 98 | 11 | 2 |
| Butler-Armstrong | 20 | 21 | 7 | 3 |
| Southwest Pa. | 41 | 218 | 11 | 6 |
| West Virginia | 135 | 919 | 31 | 25 |
| Southeast Ohio | 133 | 1,196 | 41 | 8 |
| Total | 502 | 2,644 | 107 | 54 |

## CENTRAL OHIO.

### LICKING COUNTY.

Granville—W. Showman, Heisy Gas 1 ..... Dry
Newark—Wehrle, Wehrle Stove 1 ..... Gas
Licking—E. I. Meredith, Heisey Gas 3 ..... Gas
Washington—Weiss, Utica G. O. &, Min. 1 ..... Gas
Liberty—Harris, Ohio Fuel Supply 1 ..... Gas

Dry ..... 1
Gas ..... 4

### FAIRFIELD COUNTY.

Walnut—Daubmier, Logan Gas & Fuel 1 ..... Gas
A. C. Bryson, Ohio Fuel Supply 1 ..... Gas

Gas ..... 2

### KNOX COUNTY.

Liberty—E. W. & L. Ogg, Logan G. & F. 1 ..... Dry
Pike—Kirkpatrick, Ohio Fuel Supply 1 ..... Gas

Dry ..... 1
Gas ..... 1

### ASHLAND COUNTY.

Green—J. R. Beachler, Ohio F. Supply 1 ..... Dry
T. J. Royer, Ohio Fuel Supply 1 ..... Gas

MEDINA COUNTY

LORAIN COUNTY

WAYNE COUNTY

RICHLAND COUNTY

CUYAHOGA COUNTY

## CENTRAL OHIO FIELD

SUMMARY OF COMPLETED WORK

## LIMA FIELD

WOOD COUNTY

HANCOCK COUNTY

MERCER COUNTY

DARKE COUNTY

CRAWFORD COUNTY

## LIMA FIELD

SUMMARY OF COMPLETED WORK

## INDIANA FIELD

## INDIANA FIELDS.

### SUMMARY OF COMPLETED WORK.

| | May, '17 | | | Apr., '17 | | |
|---|---|---|---|---|---|---|
| | Comp. | Prod. | Dry. | Comp. | Prod | Dry. |
| Jay | 3 | 0 | 3 | 2 | 15 | 1 |
| Randolph | 0 | 0 | 0 | 1 | 0 | 1 |
| Gibson | 1 | 60 | 0 | 2 | 91 | 0 |
| Pike | 10 | 91 | 5 | 7 | 100 | 2 |
| Sullivan | 4 | 87 | 2 | 2 | 4 | 1 |
| Miami | 0 | 0 | 0 | 3 | 88 | 0 |
| Wabash | 0 | 0 | 0 | 1 | 0 | 1 |
| Allen | 2 | 119 | 0 | 1 | 5 | 0 |
| Knox | 1 | 75 | 0 | 0 | 0 | 0 |
| Madison | 0 | 0 | 0 | 1 | 0 | 0 |
| Total | 21 | 432 | 10 | 20 | 303 | 7 |

## KENTUCKY-TENNESSEF.

### WAYNE COUNTY.

Cooper—Jas Marsh, Kendall Refg. 6 ..... Dry
L. Sheffield, Rex G. Carpenter 1 ..... Dry
R. Shoemaker, Daugherty & Snider 8 ..... Dry
M. Harmon, Rex G. Carpenter 1 ..... Dry

Dry ..... 4

### WOLFE COUNTY.

Torrent—Townsend, LeRoy Adams Oil 1 ..... Dry

### ESTILL COUNTY.

Irvine—Wilson, Meldren & Keating 33 ..... Dry
A. O. Wilson Meldren & Keating 34 ..... Dry
John Kelley, Meldren & Keating 1 ..... Dry
Sarah Wilson, Meldren & Keating 1 ..... Dry
Lillie B. Watson, Meldren & Keating 8 ..... Dry
Dil. Tinton, Wood Oil 3 ..... Dry
J. M. Garrett, Wood Oil 2 ..... Dry
A. Powell, W. L. Parmenter & Co. 11 ..... Dry
Collins, Gaines, Marcum & Neely 3 ..... Dry
G. Dickison, Dickison Oil 1 ..... Dry
S. J. Crawford, J. N. Heap & Co. 1 ..... Dry
Rice, Harshberger & Yates 5 ..... Dry
Williams & Co., Maple Oil & Gas 18 ..... Dry
Sal. Rogers, Clover & Neely 1 ..... Dry
Dan Cox hrs., Wm. Geary 1 ..... Dry
Albert Collins 2, J. C. McMin 2 ..... Dry
Wallace Barnes, Root-Hupp Co. 18 ..... Dry
L. Young, Gaines, Marcum & Neely 2 ..... Dry
Chas. Cox, Crown Oil 7 ..... Dry

Dry ..... 19

### POWELL COUNTY.

Ashley—Geo. Mullen, Root-Hupp Co. 2 ..... Dry
C. Wireman, Beckett & Co. 1 ..... Dry
C. Wireman, Beckett & Co. 2 ..... Dry

Dry ..... 3

### ALLEN COUNTY.

Scottsville—Kittie Hinton, Southern Oil 1 ..... Dry
Holder, Carter Oil 1 ..... Dry
Link, Banner Oil 1 ..... Dry
Forest Springs, Alcoken Oil 1 ..... Dry
Jos. Meredith, Long Creek Oil 2 ..... Dry
Harston, Kenova Oil 1 ..... Dry

Dry ..... 6

### BARREN COUNTY.

Glasgow—Harston, Southern Oil 1 ..... Dry

### WHITLEY COUNTY.

Williamsburg—Jesse Barton, Sun Co. 1 ..... Dry

### KNOX COUNTY.

Barbourville—Campbell, Esmerelda Oil 2 ..... Dry

### JACKSON COUNTY.

McKee—H. T. Shafer 1 ..... Dry

### WARREN COUNTY.

Bowling Green—Higginbotham, Chenault Oil & Gas 1. Dry

### HARDIN COUNTY.

West Point—Kerrick, John Kerrick 1 ..... Gas

## KENTUCKY-TENNESSEF.

### SUMMARY OF COMPLETED WORK.

| | May, '17 | | | Apr., '17 | | |
|---|---|---|---|---|---|---|
| | Comp. | Prod. | Dry. | Comp. | Prod. | Dry. |
| Wayne | 7 | 0 | 4 | 5 | 11 | 4 |
| Wolfe | 3 | 30 | 1 | 3 | 35 | 2 |
| Lawrence | 3 | 18 | 0 | 4 | 8 | 2 |
| Morgan | 1 | 2 | 0 | 1 | 0 | 1 |
| Estill | 101 | 3,075 | 19 | 68 | 2,707 | 11 |
| Powell | 12 | 950 | 3 | 10 | 145 | 6 |
| Lee | 1 | 5 | 0 | 0 | 0 | 0 |
| Allen | 14 | 298 | 6 | 5 | 900 | 0 |
| Bath | 1 | 50 | 0 | 0 | 0 | 0 |
| Barren | 1 | 0 | 0 | 0 | 0 | 0 |
| Lincoln | 0 | 0 | 0 | 1 | 0 | 1 |
| Whitley | 1 | 0 | 1 | 1 | 0 | 1 |
| McCrary | 5 | 90 | 0 | 1 | 12 | 0 |
| Knox | 3 | 75 | 1 | 6 | 60 | 0 |
| Rockcastle | 1 | 5 | 0 | 1 | 10 | 0 |
| Jackson | 2 | 25 | 1 | 1 | 10 | 0 |
| Floyd | 0 | 0 | 0 | 1 | 0 | 1 |
| Warren | 2 | 20 | 1 | 0 | 0 | 0 |
| Magoffin | 3 | 20 | 0 | 0 | 0 | 0 |
| Hardin | 1 | 0 | 1 | 0 | 0 | 0 |
| Total | 162 | 5,572 | 38 | 109 | 3,978 | 28 |

## ILLINOIS FIELD.

### CLARK COUNTY.

Martinsville—M. Morgan, J. M. Lane & Co. 1 ..... Dry

### CRAWFORD COUNTY.

Robinson—Jno. P. Coulter, H. C. Ferriman 6 ..... Dry
Jno. P. Coulter, Central Refg. 9 ..... Dry
Licking—W. R. Burner, Anna M. Grace 1 ..... Gas
Prairie—M. Barlow, Fisher Oil 7 ..... Dry
Montgomery—E. C. Crews, Ohio Oil 2 ..... Gas
Honey Creek—Mary Hoke, Ohio Oil 16 ..... Dry
J. D. Reaville, Central Refg. 5 ..... Dry
Henry Allen, Selby & Cisler 2 ..... Dry
C. S. Jones, J. D. Madding trus. 4 ..... Dry

Dry ..... 7
Gas ..... 2

### CLINTON COUNTY.

Clement—Schafly Bros., Carlyle-Balliville Oil 1 ..... Dry
Breese—A. Hoffsomer, Frogtown, Oil & Gas 5 ..... Dry

Dry ..... 2

### MARION COUNTY.

Sandoval—M. Dykstra, Clear Oil 1 ..... Dry
B. C. Warfield, Kewannee Oil & Gas 5 ..... Dry

Dry ..... 2

### WABASH COUNTY

### ILLINOIS FIELD

#### SUMMARY OF COMPLETED WORK

### MID CONTINENT

### KANSAS

#### MONTGOMERY COUNTY

#### BUTLER COUNTY

#### CHAUTAUQUA COUNTY

#### FRANKLIN COUNTY

#### WILSON COUNTY

#### NEOSHO COUNTY

#### MIAMI COUNTY

#### WILDCATS

### OKLAHOMA

#### WASHINGTON COUNTY

#### BIRD CREEK AREA

#### HERRICK SHALLOW SAND

### OSAGE DISTRICT.

18-27-11, Indian Terr. Ill. Co. 5 ..... Gas
36-24- 8, Foster & Davis 9 ..... Gas
29-25-11, Lot 285, Foster & Brennan 38 ..... Gas
14-26-11, Workman Oil & Gas 9 ..... Gas
17-24-10, Lot 61, Manhattan Oil 41 ..... Dry
2-21- 9, Francot et al. 11 ..... Gas
17-21-10, Chas. Page 2 ..... Gas

Gas ..... 6
Dry ..... 1

### CLEVELAND, PAWNEE COUNTY, MANNFORD.

11-20- 8, Gibbins, Sinclair O. & G. Co. 31 ..... Dry
11-20- 8, Mayfield, J. S. Cosden 2 ..... Dry
20-20- 7, Mosing, Carter Oil Co. 1 ..... Dry
17-18- 9, Stedham, Producers Oil 1 ..... Gas

Dry ..... 3
Gas ..... 1
Gas Production ..... 7,000,000

### CUSHING-SHAMROCK.

3-16- 7, Barker, Magnolia Pet. Co. 3 ..... Gas
4-16- 7, Barnett, Okla. Nat. Gas Co. 2 ..... Gas
16-16- 7, Brown, Black & Kinney 1 ..... Oil & Gas
13-18- 7, Jones, Producers Oil Co. 1 ..... Dry

Dry ..... 1
Gas ..... 3

### TULSA, GLENN POOL, WICEY, KELLYVILLE.

9-18-12, Jellowhead, Bruner Oil Co. 8 ..... Dry
15-18-12, Harrison, C. G., Tibbens 9 ..... Dry
23-18-12, Gregory, Anchor Oil Co. 2 ..... Dry
25-18-12, Parks, Lofland et al. 5 ..... Dry
3-17-12, Durnat, Prairie Oil & Gas 12 ..... Gas
30-17-12, Lewis Oklahoma Star Oil Co. ..... Dry
8-17-13, Crosby, Honoto et al. 3 ..... Oil & Gas
23-17-13, Baysinger, Sinclair Oil & G. Co. 1 ..... Dry
32-17-13, Sampson, Sinclair O. & G. Co. 1 ..... Dry
33-17-13, Allen, Elliott et al. 4 ..... Dry
34-17-13, Agent, Howard et al. 3 ..... Dry
34-17-13, Agent, Howard et al. 4 ..... Dry
28-17-14, England, Eastern Oil Co. 1 ..... Dry
32-17-14, Harrison, Gillette et al. 2 ..... Dry
37-16-13, Frank, Petroleum Co. 6 ..... Gas
26-16-14, Harrison, Fleshler et al. 2 ..... Dry
35-16-14, Anderson, Quaker O. & G. Co. 1 ..... Dry
31-16-11, Marshall, F. Miles 1 ..... Dry
33-18-11, Miller, Altus Oil Co. 4 ..... Dry
27-17-11, Robinson, Mid Con. Oil Co. 3 ..... Dry
24-18-14, Barnett, Johnson et al. 1 ..... Dry
25-18-14, Nave, A. A. Richards 4 ..... Dry
32-17-13, Sampson, Burke-Hoffield O. Co. 1 ..... Dry
26-17-13, Bruner, Edgar Oil Co. 1 ..... Gas
32-17-13, Williams, J. H. Markham 4 ..... Gas
32-17-13, Williams, Cosden O. & G. Co. 10 ..... Dry
32-17-13, Williams, Cosden O. & G. Co. 12 ..... Dry
29-17-14, Johnson, Swoveland et al. 2 ..... Dry
30-17-14, Depriest, Ardizzone et al. 2 ..... Dry
1-16-13, Bailey, Prairie O. & G. Co. 1 ..... Dry
2-16-14, Deluck, Prairie O. & G. Co. 13 ..... Dry
23-16-14, Lowery, J. H. McDonald 1 ..... Gas
35-16-14, Anderson, Cosden O. & G. Co. 1 ..... Dry
25-17-13, Williams, Wilcox et al. 2 ..... Dry
17-17-14, Mann, Atlantic Oil Corporation 1 ..... Dry
23-17-14, Porter, H. F. Wilcox et al 3 ..... Dry
23-17-14, Porter, H. F. Wilcox et al. 4 ..... Dry
13-16-13, Hayden, Caney River Gas Co. 3 ..... Gas
26-16-13, Jefferson, Solo Oil Co. 7 ..... Dry
3-16-14, Marshall, Atlantic Oil Corp. 1 ..... Dhy
25-16-14, Nevins, Carter Oil Co. 1 ..... Dry
35-16-14, Anderson, McDonald & Co. 1 ..... Dry
27-18-10, Gouge, H. A. Bartlett 12 ..... Dry
25-18-12, Ricketts, Sperry O. & G. 2 ..... Dry
24-17-11, Tiger, Herring et al. 2 ..... Dry
33-17-12, Fee Thos. Gilcrease 1 ..... Dry
12-16-12, Hauwell, Alexander et al. 1 ..... Dry
1-19-14, Bruner, Siefert et al. 1 ..... Dry
33-19-14, Hooks, The Producing Co. 1 ..... Dry
26-18-13, Loer, Solo Oil 1 ..... Dry
6-18-14, Morrison, H. F. Wilcox 1 ..... Dry
11-18-14, Barnett, Bearman et al. ..... Dry
4-18-14, Island, Smith & Anderson 4 ..... Dry
31-18-14, Harkey, Simmons et al. 1 ..... Dry
35-18-14, Chilres, Yearum et al. 2 ..... Dry
36-18-14, Moore, Edgar Oil 1 ..... Gas
27-17-13, Buck, Prairie O. & G. 1 ..... Dry
28-17-13, Bigpond, Cosden O. & G. 2 ..... Dry
33-17-13, Sampson, Livingston Oil Corp. 13 ..... Dry
23-16-14, Risby, J. H. McDonald 3 ..... Gas
26-17-12, Withers, H. F. Wilcox 2 ..... Dry
4-16-11, Pickett, Okla. Nat. Gas 3 ..... Dry

Dry ..... 53
Gas ..... 0

Gas Production ..... 61,000,000

### OKMULGEE-MORRIS.

18-13-13, Haines, Okmulgee P. & R. 2 ..... Dry
12-13-14, Johnson, Carr & Gardner 2 ..... Dry
7-13-12, Young, Producers Oil 1 ..... Dry
20-12-13, Proctor, Smith & Swan 2 ..... Dry
9-11-14, Daniel, Smith & Swan 1 ..... Gas
10-13-15, Buckley, Cosden O. & G. 3 ..... Dry
1- 2-13, Yardy, Galbreath et al. 1 ..... Dry
32-12-13, Starr, Kingwood Oil 1 ..... Dry
6-12-14, Daniel, L. S. Skelton 1 ..... Dry
16-11-14, Carter Oil 2 ..... Gas
32-12-12, Johnson, Newman et al. 1 ..... Dry
6-13-12, Newby, Kimbley & Co. 2 ..... Gas
7-13-12, Adams, Waite Phillips 1 ..... Gas
10-13-13, Buckley, Cosden & Aitken 6 ..... Dry

Dry ..... 10
Gas ..... 4
Gas Production ..... 70,000,000

### HAMILTON SWITCH.

6-15-12, Harjo, Ireland & Smith 1 ..... Dry
7-15-12, Harjo, Wilcox et al. 1 ..... Dry
14-14-11, Williams, Stebbins & Lyons 1 ..... Dry
24-14-11, Sango, Cosden O. & G. 1 ..... Dry

Dry ..... 4

### BALD HILL, BOOCK SAND.

20-15-13, Throckmorton, Bassett et al. 1 ..... Dry
34-15-14, Grayson, Okmulgee Prod. 22 ..... Gas
16-14-13, Miller, Funk-Margay Co. 1 ..... Gas
16-14-13, Jeffery, Okmulgee P. & R. 2 ..... Gas
35-15-14, Harris, Lucky Tiger Oil 2 ..... Gas
36-14-13, July, Kingwood Oil 1 ..... Gas
11-14-14, Rentie, Phillips et al. 2 ..... Dry
11-15-14, Francis, King & Kimbley 4 ..... Dry
33-15-13, Roberts, Barboa Oil 4 ..... Dry
32-15-14, Jefferson, Selby Oil 1 ..... Gas
16-14-13, Miller, Funk-Maragy Oil 1 ..... Gas
16-14-14, Colbert, Springfield Oil 5 ..... Dry

Dry ..... 5
Gas ..... 7
Gas Production ..... 38,000,000

### WAGONER MUSKOGEE, ROGERS COUNTY.

8-16-15, Richards, Goble et al. 1 ..... Gas
22-16-15, Barnett, Kiskaddon et al. 2 ..... Dry
20-16-15, Lee, United Producers Oil 8 ..... Dry
31-16-15, Fisher, Arkano Oil 1 ..... Dry
31-16-15, Hawkins, Arkano Oil 2 ..... Dry
31-15-15, Mayson, Mass. Pet. 4 ..... Dry

KAY COUNTY

WILDCATS

KANSAS

OKLAHOMA

SUMMARY OF COMPLETED WORK

MID CONTINENT

SUMMARY OF COMPLETED WORK

TEXAS PANHANDLE

WICHITA COUNTY

BURKBURNETT

WILDCATS

TEXAS PANHANDLE

| | | | |
|---|---|---|---|
| Petrolia | 0 | 0 | 0 |
| Strawn | 10 | 310 | 0 |
| Wildcats | 10 | 25 | 9 |
| Total | 95 | 4,502 | 20 |

## NORTH LOUISIANA.

### BATSON.

Caddo—
23-21-16, Rogers, Caddo Oil & Ref. 36 ..... Dry
23-21-16, Brooks, Producers Oil 10 ..... Dry
34-20-15, Noel Fee, Producers Oil B-1 ..... Dry
5-21-16, Smith, Indiana-Ark. Oil 1 ..... Dry
18-21-15, Tricksell, Vala Oil Fee 1 ..... Dry
32-19-16, Cushman, White Bros. 1 ..... Dry
De Soto—
20-13-11, Williams, Gulf Refining E-4 ..... Dry
36-13-12, Saunders, Producers' Oil A-13 ..... Dry
36-13-12, Saunders, Producers' Oil A-20 ..... Dry
Red River—
19-13-11, Chicago L. & C., Standard Oil 4 ..... Dry
17-18-10, Palmer, Standard Oil 30 ..... Gas
Bossier—
19-16-11, Marshall, Hodges Oil 2 ..... Gas
18-16-11, A. F. McDade, Standard Oil 1 ..... Gas
25-16-12, Caplis, Atlas Oil 1 ..... Gas
3-16-11, Ward, White Bros. 1 ..... Gas
Miscellaneous—
6-17-14, Cross Lake, Cross Lake O. & G. 2 ..... Dry
27-19-6, Richland, Commercial O. & G. 1 ..... Gas
30-11-2, Gee, Pardee Oil 1 ..... Dry
Anderson Co., Royal & Davey, Prod O. 1 ..... Dry
Parrett & Greenwood, Prod. Oil 3 ..... Dry

Dry ..... 14
Gas Wells ..... 6

## NORTH LOUISIANA.

### SUMMARY OF COMPLETED WORK.

| | Comp | Prod. | Dry. | Gas. |
|---|---|---|---|---|
| Caddo | 38 | 3,330 | 6 | 0 |
| De Soto | 10 | 335 | 3 | 0 |
| Red River | 9 | 670 | 1 | 1 |
| Bossier | 5 | 10 | 0 | 4 |
| Miscellaneous | 5 | 0 | 4 | 1 |
| Total | 67 | 4,345 | 14 | 6 |

## GULF COAST REGION.

### BATSON.

Tucker, Gulf Producers 3 ..... Dry
Hillsome, Phoenix Oil 4 ..... Dry

Dry ..... 2

### EDGERLY.

Muller, Travelers Oil 3 ..... Dry

### GOOSE CREEK.

Sweet, Simms-Sinclair 7 ..... Gas
Galliard, Humble Oil 6 ..... Dry
Galliard, Humble Oil 10 ..... Gas
Scorgea, Gulf Producers 1 ..... Dry
Churchill, Gulf Producers 5 ..... Dry
Busch, Gulf Producers 3 ..... Gas
Busch, Gulf Producers 5 ..... Dry
Jones, Republic Producers 1 ..... Dry
Duke, Magnolia Petroleum 2 ..... Dry
Schilling, Rucker et al. 1 ..... Dry
Galliard, Goose Creek Petroleum 1 ..... Dry
Adey, Empire Gas & Fuel 2, old ..... Dry
Pelly, Texas Petroleum 1 ..... Dry
Peninsula, Texas Petroleum 1 ..... Dry
Galliard, Meyers et al. 2 ..... Dry
Galliard, Humble Oil 11 ..... Dry

Dry ..... 13
Gas ..... 3

### HUMBLE.

Permian, Producers Oil 141 ..... Gas

### MISCELLANEOUS.

Limestone County—
Helton, Mexia Oil & Gas 1 ..... Gas

## GULF COAST.

### SUMMARY.

| Dist. | Comp. | Prod. | Dry. | Gas. |
|---|---|---|---|---|
| Anse la Bts | 1 | 0 | 1 | 0 |
| Batson | 8 | 175 | 2 | 0 |
| Edgerly | 4 | 4,065 | 1 | 0 |
| Goose Creek | 55 | 25,550 | 25 | 3 |
| Humble | 44 | 2,055 | 18 | 1 |
| Jennings | 5 | 325 | 3 | 0 |
| Markham | 2 | 55 | 0 | 0 |
| Spindletop | 3 | 95 | 1 | 0 |
| Saratoga | 7 | 840 | 2 | 0 |
| Sour Lake | 23 | 3,035 | 4 | 0 |
| Vinton | 3 | 8,150 | 0 | 0 |
| Miscellaneous | 24 | 6,520 | 19 | 1 |
| Total | 179 | 50,865 | 77 | 5 |

## TEXAS-LOUISIANA.

### SUMMARY.

| | Comp. | Prod. | Dry. | Gas. |
|---|---|---|---|---|
| Texas Panhandle | 95 | 4,502 | 20 | 0 |
| North Louisiana | 67 | 4,345 | 14 | 6 |
| Gulf Coast | 179 | 50,865 | 77 | 5 |
| Total | 341 | 59,712 | 111 | 11 |

## HOW MONEY GROWS.

### Systematic Saving Wins in the Long Run.

*Deposits each week. Interest compounded Semi-annually, at 5%*

| | 25c Per Wk. | 50c Per Wk. | 75c Per Wk. | $1.00 Per Wk. | $2.00 Per Wk. |
|---|---|---|---|---|---|
| 6 Mos. | $ 6.56 | $ 13.12 | $ 19.68 | $ 26.23 | $ 52.46 |
| 1 Year | 13.25 | 26.49 | 39.74 | 52.98 | 105.96 |
| 2 Years | 27.02 | 54.04 | 81.05 | 108.08 | 216.16 |
| 3 " | 41.35 | 83.71 | 124.06 | 165.42 | 330.86 |
| 4 " | 56.26 | 112.52 | 168.78 | 225.03 | 450.06 |
| 5 " | 71.77 | 143.54 | 215.31 | 287.09 | 574.18 |
| 10 " | 150.26 | 318.52 | 477.78 | 637.45 | 1274.10 |

*Monthly Deposits. Interest compounded Semi-annually at 4%.*

| Yrs. | $1 | $2 | $5 | $10 | $20 |
|---|---|---|---|---|---|
| 1 | 12.26 | 24.52 | 61.30 | 122.60 | 245.20 |
| 2 | 25.01 | 50.02 | 125.07 | 250.14 | 500.28 |
| 3 | 38.28 | 76.57 | 191.42 | 382.84 | 765.68 |
| 4 | 52.09 | 104.18 | 260.45 | 520.90 | 1041.80 |
| 5 | 66.45 | 132.90 | 332.27 | 664.54 | 1329.08 |
| 10 | 147.46 | 294.92 | 737.30 | 1474.60 | 2949.20 |

## THOUGHTS FOR THE THOUGHTFUL SALESMAN

### "A Number of Things I'd Do if I Made Up My Mind to be a Salesman," said the Writer

[illegible]

I [illegible]
[illegible]
Quality
Price
[illegible]

[illegible]

STUDY THE DEALER AND BECOME HIS FRIEND

[illegible]

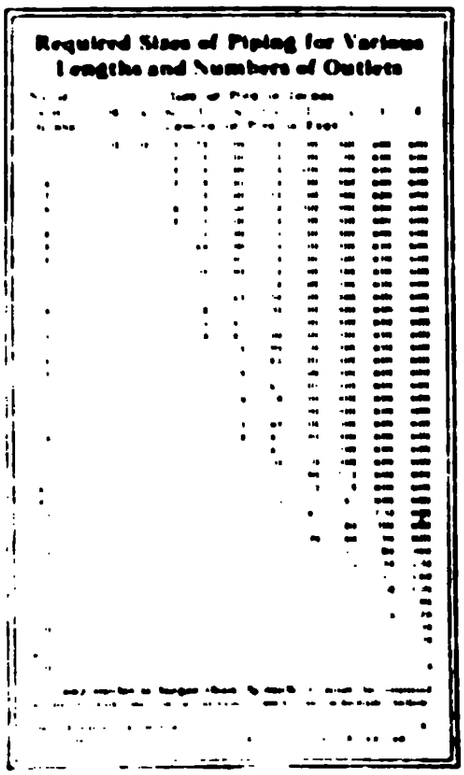
STOP LOOK LISTEN

[illegible]

## GAS PIPING—A STANDARD SCHEDULE

M [illegible]

[illegible]



# AROUND THE BELT

**New Wells, New Pipe Lines, New Contracts, Additions and Extensions. A Fund of Valuable News Gathered for the Journal Through Many Sources.**

## TRADE PERSONALS

It will be noted that the names appearing under the personal headings are exclusively those of men interested in the development of the natural gas field. Those wishing to learn of matters pertaining to men interested in the field of artificial gas should refer to THE GAS INDUSTRY magazine, published at 60 Pearl Street, Buffalo, N. Y., which devotes its columns entirely to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being specifically issued for its respective field. In this way each magazine renders 100% efficiency in the industry it covers.—Publisher's Note.

**WANTED:** Position as Manager of gas plant by practical gas man and meter expert, fifteen years' experience. Address 2193, NATURAL GAS AND GASOLINE JOURNAL.

CURRAN, R. W., who was formerly connected with the South Shore Natural Gas & Fuel Company of Buffalo, has become affiliated with the Trumbull Public Service Company, Warren, Ohio.

EAGAN, FRANK P., has been elected President of the Dunneagan Oil & Gas Company, recently incorporated to operate in the Raleigh, Ont., fields.

HALL, DR. F. W., is Vice-President of the Dunneagan Oil & Gas Company, Raleigh, Ont.

HALLES, TOM, has resigned as scout for the Sinclair Oil & Gas Company, and is now at Findlay, Ohio.

HORN, J. EDWARD, is Vice-President of the newly organized Moshannon Oil & Gas Company, Philipsburg, Pa.

KAY, FRED H., recently severed his connection as Assistant State Geologist of Illinois, and is now with the Sun Company, Philadelphia.

LOTHAM, H. W., has been re-elected President of the Cincinnati Gas Transportation Company, Cincinnati, Ohio.

MAXWELL, CHARLES B., has been elected President of the Moshannon Oil & Gas Company recently organized at Philipsburg, Pa.

OLIPHANT, B. C., President of the Iroquois Natural Gas Company, Buffalo, N. Y., was the chief speaker at a recent Rotary Club luncheon in that city. Mr. Oliphant spoke on the Production and Distribution of Natural Gas, presenting motion films in connection with his talk.

SULLIVAN, J. M., who is Vice-President of the Dalmore Oil & Refining Company, and also geologist for the company, has moved his headquarters from Ardmore to Oklahoma City.

WINDISCH, C. F., at the annual meeting of the Cincinnati Gas Transportation Company, Cincinnati, Ohio, was re-elected Vice-President.

## DECEASED

DICKSON, HUGH A., of Pittsburgh, Pa., Superintendent of the Rock Run Fuel Gas Company, at the age of forty-five.

NASH, JOHN J., President of the Huntington Development and Gas Company, Huntington, West Va., and for the last 30 years prominently identified with the oil and gas industry in Pennsylvania, Ohio and West Virginia, died at his home in that city June 4th. Mr. Nash was born at Burning Springs, W. Va., in 1876 and became identified with oil and gas developments in his early life and continued in that field until the time of his death.

MILLER, HARRY, for twenty-five years Purchasing Agent of the Granville Fuel & Light Company, Granville, Ohio, at the age of forty-five.

## INCORPORATED

It will be noted that we here specifically point to natural gas companies that have been incorporated. Those desiring to learn of artificial gas companies that have received incorporation papers should refer to THE GAS INDUSTRY magazine, published at 60 Pearl Street, Buffalo, N. Y., which devotes its columns entirely to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being specifically issued for its respective field, thus each rendering 100% efficiency in the industry it covers.—Publisher's Note.

**COLORADO**

The Empire Gas Fuel Company, a new subsidiary of Cities Service Company, has been incorporated under the laws of Colorado, with a capital stock of $500,000 to develop oil and gas leases in Wyoming, Utah, Idaho, Arkansas, Washington, and other States. The new company has acquired a large acreage of leases in the various Wyoming oil districts.

**DELAWARE—Dover**

The Canada Gas & Electric Company, capital $5,000,000, has been incorporated under the laws of this State. The incorporators are L. B. Phillips and J. B. Bailey.

**PENNSYLVANIA—Philipsburg**

The local Chamber of Commerce has organized the Moshannon Oil & Gas Company. The following officers have been elected: President, Charles B. Maxwell; Vice-President, J. Edward Horn; Secretary, L. Baron Smith; Treasurer, T. J. Lee. Directors, Charles B.

## PER CUBIC FOOT—RATES

PENNSYLVANIA Allegheny County

Harrisburg

Pittsburgh

Warren

ONTARIO Tillsonburg

## ITEMS OF FINANCE

NEW YORK New York City

OKLAHOMA

**PENNSYLVANIA—Pittsburgh**

The Union Natural Gas corporation declared the regular quarterly dividend of 2½ per cent., payable July 14 to stock of record June 30.

## NEW FRANCHISES

It will be noted that the franchises referred to below are those specifically granted natural gas companies. . Those desiring to learn of artificial gas franchises granted should refer to THE GAS INDUSTRY magazine, published at 60 Pearl Street, Buffalo, N. Y., which devotes its columns entirely to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being exclusively issued for its respective field, and each rendering 100% efficiency in the industry it covers.—Publisher's Note.

**CALIFORNIA—McKittrick**

The Producers' Gas & Fuel Company has secured permission to operate in this city. The Doheny interests will furnish the company with its supply of gas.

**KANSAS—Independence**

A new franchise is being sought by the Kansigan Gas Company. The franchise now in force still has several years to run before expiration.

**KENTUCKY—Jellico**

The Empire Gas & Fuel Company has filed an application for permission to operate a natural gas system in this city.

**OKLAHOMA—Temple**

John C. Keys of Lawton, Okla., has filed an application for a natural gas franchise in this city.

**Walters**

John Keyes of Lawton has submitted a franchise proposition to the city for approval.

## ELECTED

**OHIO—Cincinnati**

At the annual meeting of the Cincinnati Gas Transportation Company, the following officers were re-elected: H. W. Lothman, President; C. F. Windisch, Vice-President; M. E. Moch, Treasurer. Theo. Clauss was re-elected Secretary.

**PENNSYLVANIA—Butler**

The Lawrence Denny Oil & Gas Company recently elected the following officers: M. S. Atkinson, President; J. E. Pesler, Vice-President; H. C. Walley, Secretary and Treasurer; Lawrence Denny, Superintendent and Manager.

**Titusville**

The Big Sand Oil & Gas Company at its annual meeting elected the following directors: C. N. Payne, F. H. Payne, S. S. Bryan, M. W. Jamieson, A. J. Byles and C. R. Church. At the meeting it was announced that the company has paid off 15 per cent. of its bonded indebtedness during the past year and is in excellent financial condition.

## GENERAL

It will be noted that the items appearing under this heading pertain specifically to natural gas matters, development in natural gas fields, etc. Those wishing to obtain a knowledge of the newest developments along artificial gas lines, are referred to THE GAS INDUSTRY magazine, published at 60 Pearl Street, Buffalo, N. Y., which devotes its columns exclusively to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being specifically issued for its respective field, and each, therefore, rending 100% efficiency in the industry it covers.—Publisher's Note.

**ARKANSAS—Fort Smith**

A 50,000,000 cubic foot well is reported near Fort Smith, drilled in on the Tickel property.

**CALIFORNIA—Lodi**

The Sacramento Natural Gas Company has submitted to the municipal authorities a formal offer for the sale of its plant.

**Los Angeles**

The Southern California Gas Company has purchased the distributing system of the Beverly Hills Utilities Company for $18,500.

**Porterville**

The Central California Gas Company is completing its arrangements for the construction of a gas line.

**Ontario**

The Southern Counties Gas Company of Los Angeles has purchased the property and distributing system of the Ontario-Upland Gas Company.

**DELAWARE—Dover**

The Empire Oil & Gas Company has been incorporated with a capital stock of $1,000,000 by L. B. Phillips and J. B. Bailey.

**ILLINOIS—Chicago**

Four engineers of H. M. Byllesby & Company, who have been training with the Officers' Reserve Corps at Fort Sheridan, have been transferred to Leavenworth, Kansas, to receive special training in structural work, mining, tunneling, etc. These four are W. R. Thompson, (Manager of Engineering and Construction), C. A. Bessey, A. J. De St. Aubin and A. F. Hogan.

During Mr. Thompson's absence, A. H. Sayre, formerly Purchasing Engineer, will be Acting Manager of Engineering and Construction, and C. B. Niccolls will act as Purchasing Engineer in charge of the Purchasing Department.

**INDIANA—Gibson County**

In Washington Township, the Indian Refining Company's test on the Sam Ford farm, in Donation Lot 118, is reported showing 3,000,000 feet of gas at 1,550 feet.

**Kokomo**

The Indiana Natural Gas & Oil Company and the Indiana Natural Gas & Oil Company were reported.

**KANSAS Bonner Springs**

[illegible] were taken on the properties of the Kansas [illegible]

**Greenwood County**

The Imperial Oil [illegible]

**Independence**

[illegible]

**Pawnee County**

The Pawnee [illegible]

**KENTUCKY—Lexington**

[illegible]

**Louisville**

[illegible]

**Williamsburg**

[illegible]

**LOUISIANA Houma**

[illegible]

**Monroe**

[illegible]

**MISSOURI—St Joseph**

The St [illegible] the [illegible] the [illegible] handicapped [illegible]

**NEW YORK Grand Island**

[illegible] Mr Stearns has [illegible] which is direct [illegible]

**LeRoy**

[illegible] will be continued by [illegible] which now owns [illegible] that the well [illegible]

**OHIO Ashland County**

[illegible] well on a test on the [illegible]

[illegible] in the Sarah [illegible]

**Bolivar**

[illegible]

**Cincinnati**

[illegible]

**Cuyahoga County**

[illegible]

**Fairfield County**

In Walnut Township, in the Sugar Grove District, the Ohio Fuel Supply Company's test on the G. I. Taylor 50 acres, Section 3, is a fair gas well.

**Hamilton**

A great flood of applications for natural gas service is reported by the City Clerk of Hamilton.

**Hocking County**

The Logan Gas Company has completed a good gasser south of Laurelville. This is in wildcat territory.

**Licking County**

In Licking Township, the Columbus Natural Gas Company's No. 5 on the C. W. Irwin farm of 235 acres, is a good well, being a little less than a million cubic feet.

**Medina County**

In York Township, the Logan Gas & Fuel Company drilled a light gas well in a second test on the southwest corner of the W. H. Gardner farm, Lot 3.

**Richland County**

In Monroe Township, the Logan Gas & Fuel Company drilled a big gas well in its No. 2 on the H. E. Applegate farm, Section 13.

**Wayne County**

In Cannan Township, the Ohio Fuel Supply Company's test on the center of the M. H. Bernard farm, Section 30 and No. 1 on the northeast corner of the R. M. Cockrell farm, Section 6, are both large gas wells, while No. 1 on the southwest corner of the H. A. Garver farm, Section 18, is a light gas well.

**Vinton County**

The Ohio Fuel Supply Company's test on the center of the Henry Maxwell 37 acres, Section 18, is a big gas well. No. 1 on the center of the Chas. Sowers 100 acres, Section 3, is also a gas well. No. 1 on the southeast corner of the Mary L. Cassell 80 acres, Section 26, is a light gas well.

The Richland Oil and Development Company has drilled in a large gas well in No. 2 on the J. W. Martindale farm, same township.

**Wooster**

Ten non-productive gas wells in this field have been purchased by Frick & Lindsay for the casing and junk.

Local residents are rejoicing over the many gas wells that have recently been brought in in this neighborhood, hoping that the inconvenience of gas shortage will not be experienced again next winter.

**OKLAHOMA—Cement**

The Gorton Oil & Refining Company, in section 2-5-8, has completed a large gasser at a depth of 1,600 feet.

**Copan**

The Grafeman Crude Oil & Gas Company of St. Louis, Mo., has leased 160 acres of producing land in this field, together with equipment, paying $25,000.

**Cotton County**

The well owned by the Keyes-Young interests, near Walters, which came in at a depth of 2,165, is reported to be making about 8,000,000 cubic feet. The well is located in wildcat territory.

**Drumright**

During the windstorm on June 8th, the Gypsy Oil Company lost a number of buildings in the Drumright field, and had forty derricks blown down.

**Healdton**

The Gypsy Oil Company's well in the Fox district, which has a production of 50,000,000 to 60,000,000 cubic feet, was recently shut in by the mudding process.

**Muskogee**

It is said that the Oklahoma Producing & Refining Company is contemplating the erecting of a casing-head gasoline plant in one of the fields around this city.

**Oklahoma City**

It is reported that negotiations are under way looking to the merging of the Oklahoma Natural Gas Company, the Osage & Oklahoma Gas Company, and the Caney River Gas Company.

The cities served by the companies are Oklahoma City, Guthrie, Shawnee, Tulsa, Muskogee, Claremore, Sapulpa, and a number of others.

**Okmulgee**

In Section 6-11-14 Smith & Swan have a 2,000,000-foot gasser in their No. 3 in Section 6-11-14 on the Wright farm.

**Pontotoc County**

The Mascho Oil Company has a good gasser in its No. 2 on the Wade farm in the northeast corner of the southwest quarter of Section 3-4-7.

**Stephens County**

The Owl Oil & Gas Company, it is reported, has completed a 40,000,000-foot gasser in the Loco district, at a depth of 840 feet. The gas will be taken by the Lone Star Gas Company.

**Tiger Flats**

Kimbley & Cook have completed a gasser reported to be making 15,000,000 cubic feet, in No. 3 on the Newby lease in Section 6-13-12. The gas was uncovered at a depth of 1,889 feet.

**Wilson**

A four-inch main is being extended to Wilson, by the Consumer's Light & Power Company, and it is expected that the city will shortly enjoy gas service.

**PENNSYLVANIA—Bradford**

The Potter Gas Company of Bradford, Pa., is negotiating for the purchase of the Mountain Gas Company. The field of the latter company extends over a number of counties in northern Pennsylvania.

**Butler**

The Phillips Oil & Gas Company is taking permits to take in territory including Chanceford Pk and [illegible] townships

**Greene County**

[illegible] Kennedy Springhill township the Marquette Gas Company has drilled No. [illegible] on the [illegible] farm a gasser in the Fifth sand at about [illegible] feet. It is estimated to have a capacity of [illegible]

**Kane**

A Wall map [illegible] and [illegible] of the [illegible] are [illegible] Mt. Jewett [illegible] [illegible] No. [illegible] on the [illegible] farm [illegible] feet per day.

[illegible] under lease to [illegible] Gas Company, [illegible] West Main [illegible] which is [illegible]

**Sycamore**

[illegible] Sycamore township [illegible] Pa. [illegible] near Sycamore [illegible] the Big Dunkard.

**Warren**

[illegible] Company has purchased a [illegible] Pa. [illegible] Big Dunkard [illegible]

**Waynesburg**

[illegible] Big Dunkard.

**UTAH Salt Lake City**

[illegible]

**WEST VIRGINIA Braxton County**

[illegible]

**Doddridge County**

[illegible]

**Fairmont**

[illegible]

**Grafton**

[illegible]

It is the largest gas well [illegible] West Virginia for a long time and definitely opens up a new gas field east of the Harrison and Marion county fields.

The production of this and other wells in the community will be cared for by the Hope Natural Gas Company's gasoline plant.

**Jackson County**

The West Virginia Washington Heights, the United Fuel Gas Company's test of the J. A. Harpold farm [illegible] Big Sand.

**Lewis County**

In Freemans Creek District the South Penn Oil Company [illegible] Stalnaker sand, passed in the 1 [illegible] hours and [illegible] hours.

**Marion County**

The Manufacturers Light & Heat Company's No. [illegible] on the [illegible] farm is a gasser in the Big Dunkard.

**Monongalia County**

[illegible] District the St. Leo Oil & Gas Company [illegible] at test on the [illegible] Sand, [illegible] Big Dunkard. It is a gasser of good [illegible]

The Manufacturers Light & Heat Company's No. [illegible] on the Nicholas Lemley farm [illegible] Big Dunkard, is a fair gasser in [illegible] sand.

The Hope Natural Gas Company's No. [illegible] on the [illegible] farm [illegible] Big Dunkard, is a fair gasser.

**Ritchie County**

[illegible] Natural Gas Company's No. [illegible] on the [illegible] farm [illegible] Big Dunkard, is a fair gasser. The Hope Natural Gas Company's No. [illegible] on the [illegible] farm [illegible] Big Dunkard, is a fair gasser.

**Roane County**

[illegible] Big Dunkard.

**Tyler County**

[illegible]

**Wetzel County**

On Porters Creek, the Philadelphia Company has a Gordon sand gasser at its test on the William Mertz farm. On the same stream and in the same district, the Manufacturers' Light and Heat Company's test on the Samuel Teafarden farm is a gasser in the same formation.

**TEXAS—Mineral Wells**

The Empire Gas & Fuel Company has developed a 15,000,000-foot gasser at a depth of 4,227 feet. The well has a rock pressure of 1600 pounds.

**WYOMING—Pine Grove**

Over 160 acres of leases have been purchased by the Mutual Oil & Gas Company in this region.

**ONTARIO—Dover West**

No. 1 well of the Union Natural Gas Company on the Dr. Fleming farm is reported to be making 5,500,000 cubic feet per day. The well was drilled to a depth of 3,185 feet, and developed a rock pressure of 1,225 pounds.

**Fingal**

It is reported that a large gas well has been brought in at a point five miles west of this place.

**Seneca Township**

The National Natural Gas Company of Hamilton has a well on the farm of William Pettigrew, with a flow of 1,000,000 feet a day. The well was found in an entirely new field.


## FOR SALE

**1 150 HP 2 cylinder gas engine belted to one 1103 cu. ft. Ingersoll-Rand Duplex Compressor, both new in 1913.**

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INDIANA GAS LIGHT COMPANY
NOBLESVILLE, IND.

No. 2194

*"Can I Make Gasoline From My Natural Gas?"*

**H. A. FISHER CO.**
**NATURAL-GAS GASOLINE ENGINEERS**

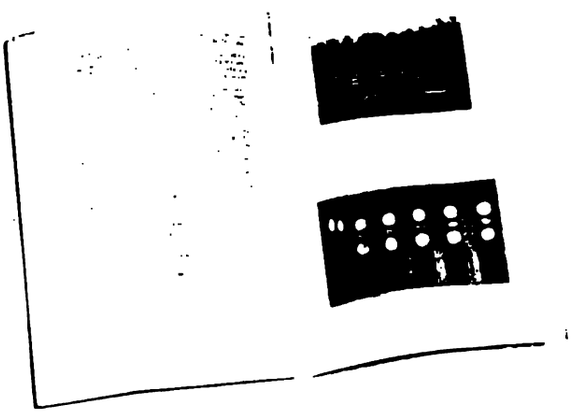
**can tell you definitely.** —Their new system of testing the gas at the wells is the best plan yet devised. It is absolutely dependable. It eliminates the 'guess work" from the gasoline business.

**Pittsburgh,** (542 Winfield Ave.) **Pennsylvania**

**NO. 15 OF A SERIES ON** BUILDERS VENTURI IRON FOUNDRY **METER FOR NATURAL GAS**

## Concerning the Venturi Meter for Natural Gas Measurement

51 pages, 37 halftone and line plate illustrations, 80 lb. coated stock, large Century type, embossed antique cover --- these are the more evident features of new Bulletin No. 86, "The Venturi Gas and Air Meter," which make it pleasant to look at and easy to read.



The features making it of value to natural gas engineers are a simple, conservative style of presentation, actual operating data, drawings illustrating applications, methods of installing, features of construction, etc.

*A copy will be forwarded to you immediately upon receipt of your name and address, free of all obligations.*

**BUILDERS IRON FOUNDRY** "Builders of the Venturi" **PROVIDENCE, R. I.**

New York Pittsburgh Chicago San Francisco Portland

# MEMBERS OF ASSOCIATION OF NATURAL GAS SUPPLY MEN

---

[illegible] Pittsburgh, President, Union Building, Pittsburgh

[illegible] ADAMS, Secretary-Treas., Penn National Bank Building, Pittsburgh

Aetna Iron Works, Corry, Pa.
Allegheny Steel Co., Pittsburgh
Ancher Packing Co., Pittsburgh

Brownell Gas Engine Co., Grove City
Bridgeport Co., The, Bridgeport, W. Va.
Buckeye Company, Warren, Ohio
Bryant & Sterling Mfg. Co., Bradford, Pa.
Bryant Co., The, Waterbury, Conn.
Buffalo & Pittsburgh Pipe Co., Pittsburgh
Bryant Heater & Mfg. Co., Cleveland
[illegible] Co., [illegible], Buffalo
Builders Iron Foundry, Providence
Byers A. M. Co., Pittsburgh

Carnegie Steel Co., Pittsburgh
Chapin Packer Mfg. Co., Pittsburgh
Continental Rubber Mfg. Co., Connellsville
Cook & Norton Mfg. Co., Watervliet, N. Y.
Crescent Gas Meter Co., Cleveland
Crucible Mfg. Co., Pittsburgh
Cumberland Gas Separator Co., Huntington, W. Va.
Cumberland River Coal Co., Nashville, Tenn.
Cumberland Mfg. & Vending Co., Cincinnati
Cincinnati Supply Co., St. Louis
Cooper & Hewitt Mfg. Co., Hoboken, N. J.
Crosby Pattern Co., New York City
Cutler Hammer Mfg. Co., The, Milwaukee

Davis Bournonville Co., Jersey City
Dearth Pipe Line Co., Clarion
Dresser, S. R., Gas Burner & Meter Co., Bradford
Dehuff Engineering Co., Clarion, Pa.
Draper Oxygen Apparatus Co., Pittsburgh
Dresser, S. R., Mfg. Co., Bradford, Pa.

Equitable Meter Co., Pittsburgh
Erie Foundry Co., Hamilton, O.

Fort Pitt Bridge Works, Pittsburgh, Pa.
Fairbanks, The Fairbanks, Morse & Co., Pittsburgh
Fisher Governor Co., Marshalltown, Iowa
Fisher & Lindsay Co., Pittsburgh
Fuel Oil Equipment Co., Houston, Texas

Garnett Packing Co., Pittsburgh
Gas Age, The, New York City
Gas Engine, The, Chicago
Gauge Glass Packing Co., Providence
General Electric Co., Schenectady
General Supply Co., The, Lima, Ohio
Gilbert Machine Works, Hanover, N. H.
Gilbert, P. D., Chicago
Globe Oxygen Dispensers Co., The, Cleveland, Ohio
Gordon Gas Power & Pump Co., Pittsburgh

Hammond Iron Co., Pittsburgh
Hammond Meter Co., Inc.
Hays Mfg. Co., Erie
Hall Mfg. Co., Greenville
Haas Mfg. Co., Chicago
Hooker, M. Owen & Co., Inc., Boston, Pa.
Hoover Heater Co., Pittsburgh
Hunter Thermo Regulator Co., Hamilton, O.
Hope Engineering & Supply Co., Pittsburgh

Ilg Heating Co., The, Columbus
Image of Boring Co., The, Chicago
Ingram Meter Co., Pittsburgh
Interstate Pipe Line Maintenance Co., Pittsburgh
Iron & Steel Products Co., Chicago

Jones Mfg. Co., Erie
Jos. Water Heater Co., St. Louis
Jones & Laughlin Steel Co., Pittsburgh, Pa.

Kalamazoo Tank & Silo Co., Kalamazoo, Mich.
Kansas Steel Co., Coffeyville, Kan.
Kerr Gun & Shell Hoist Co., St. Louis

Lorain Steel Co., Johnstown, Pa.
Lowe Mfg. Co., Pittsburgh
Ludlow Valve Mfg. Co., Pittsburgh

Manchester & White Bros., Chicago
Manhattan Rubber Mfg. Co., Passaic, N. J.
Mark Mfg. Co., Chicago
Marion Power Shovel Co., Marion, Ohio
Mason Regulator Co., Monadnock, Mass.
Metric Metal Works, Erie
Minneapolis Steel Eng. Co., Minneapolis
Modern Iron Works, Quincy, Ill.
Modern Water Supply Co., Philadelphia
Moore Mfg. Co., The, Akron
Moore Foot & Ankle Co., Pittsburgh
Motor Mfg. Co., Reno, Pa.
Mueller Mf'g. Co., Decatur, Ill.

Nathan Mfg. Co., New York City
National Supply Co., Pittsburgh
National Transit Pump & Machine Co., Oil City, Pa.
National Tube Co., Pittsburgh
National Tube & Improved Tubing, Erie
New Bedford Cordage Co., New York City
New York Belting & Packing Co., New York City
New York Air Brake Co., Watertown, N. Y.

Oil & Gas Journal, Chicago, Ill.
Oil City Boiler Works, Oil City, Pa.
Oil Trade Journal, New York City
Oil Well Supply Co., Pittsburgh
Oliver Continuous Filter, Chicago

Parkersburg Machine Co., Parkersburg, W. Va.
Parkersburg Rig & Reel Co., Parkersburg, W. Va.
Peerless Heater Co., Pittsburgh
Pennsylvania Pump & Machinery Co., Warren, Pa.
Pittsburg Meter Co., New Brighton
Pittsburg Reduced Head Boiler & Machine Co., Pittsburgh
Pittsburg Valve & Foundry Co., Pittsburgh
Pittsburg Valve, Foundry & Construction Co., Pittsburgh
Pittsburgh Water Heater Co., Pittsburgh
Plimpton Manufacturing Co., Plimpton, Mass.
Pratt & Cady Co., Inc., New York City
Primos Chemical Co., Mannington, W. Va.

Reed Roller Bit Co., Toledo
Reed Valve Co., Erie, Pa.
Reed Valve Co., Inc., Cleveland
Republic Iron & Steel Co., Youngstown
Revere Rubber Co., Chicago, Mass.
Rhines Mfg. Co., Inc., Meadville, Pa.
Rumsey Mfg. Co., Inc., Meadville, Pa.
Rockwell, W. F. & Co., Inc., Erie, Pa.
Rockwell Power & Manufacturing Co., Watervliet, Bureau
Rushing Iron & Supply Co., Tarentum, Pa.
Rubberoid Refractory Co., Chicago, Ill.
Sharon, N. J.
Rumsey Mfg. Co., Pittsburgh

Sargent, [illegible] Company, Inc., Pa.
Schaffer & Budenberg Mfg. Co., Pittsburgh
[illegible] Co., The, Cleveland, Ohio
[illegible], New York City
Smith Meter Co., Erie, Pa.
Spang Chalfant & Co., Pittsburgh
Spencer Metallic Packing Co., Philadelphia
Standard Oil Engineering Co., Springfield, O.
Stanley Works, The, New Britain, Conn.
Stanley & Patterson, Pittsburgh
Standard Pipe & Supply Co., Pittsburgh
Standard Pipe Coating Co., Inc., Chicago
Standard Steel Works, Burnham, Pa.
Standard Tank Co., Pittsburgh
Stanley Mfg. Co., Pittsburgh
Stanley Works, The, New Britain, Conn.
Stanley & Patterson, Inc., New York City
Stanley Works, The, New Britain, Conn.
Wainwright Mfg. Co., Pittsburgh
Wallace Barnes Co., Bristol, Conn.
Wallace Supply Co., Chicago
Wallace Tube Co., Inc., Pittsburgh
Wallace Pump & Machine Co., Buffalo
Wagner Mfg. Co., Watertown, Mass.
Youngstown Sheet & Tube Co., Youngstown, Ohio

Annual Convention National Gas Association of America and Associated Companies
Association of Natural Gas Supply Men, Monongahela House, Pittsburgh, Pa.

# THE LOSS OF VALUABLE CUSTOM.

**Great Danger Exists of Manufacturing Enterprises Losing Patronage, that Secured by Others Will Likely Never Return to the Original Lines of Trade.**

MANY concerns that feared they should not have sufficient commercial business with which to keep under way, have, instead of keeping up commercial activity, under the guise of patriotism, swapped over to the taking of government contracts in such large volume as to practically preclude their continuing the manufacture of their regular lines of wares.

Such a condition is deplorable, as compared with reasonable government service, since at the close of the war, and the war must certainly come to an end sooner or later, such concerns having given up their progressive campaigning for their usual commercial business, will, upon their return to commercial fields, find their trade gone, and a "man's job," before them to reinstate themselves in those fields of commercialism in which they belong, and especially with the customers whom they called theirs before these customers were lost to concerns that continued to make their commercial business, their important business. Don't dismantle your standard line of trade.

Where concerns cannot retain certain of their travelling representatives, because of call for men, on the part of the government, such have before them the magazines of the field in which to print their sales arguments, matter that will help to keep them in close touch with buyers, even though their salesmen be fewer in number than before, and personal calls be reduced to a minimum.

Advertising under present conditions is of vital importance to the manufacturer who would protect his business by keeping himself constantly and actively before the trade of the field.

We have heard people argue that there is a difference in effect produced, between the advertising of Hires Root Beer for instance, and advertising machinery or equipment. In other words, that the effect on the mind, and the result from advertising a drinkable product, to cause consumption of that product, is entirely unlike the effect from advertising machines, supplies, etc. On the contrary, however, the minds reached are the very same, and are affected alike by advertising, whether of one type of article or another. The mind that has had imprinted upon it the Hires' product, through Hires' advertisements, will remember equally well the product and name that is impressed upon it through constant advertising by the manufacturer of gas appliances.

What we must do in these times is to "keep everlastingly at it." One must keep his personal line, and his name, like the line of Root Beer and the name "Hires," before the possible buyers. He who does will win.

Lucius S. Bigelow

# FROM THE EDITORIAL MAIL BAG

THE WHITE HOUSE.
Washington

## SLIGHT REDUCTION ONLY

**The Reduction in Heating Value Due to Recovery of Gasoline Content Very Slight**

| | | | |
|---|---|---|---|
| | 1094 | | |
| Inlet Gas | 1097 | Average, 1097 | B.t.u.'s. |
| | 1100 | | |
| | 1063 | | |
| Outlet Gas | 1064 | Average, 1062 | B.t.u.'s. |
| | 1059 | | |
| Loss due to gasoline extraction | | 35 | B.t.u.'s. |
| | 1086 | | |
| Inlet Gas | 1087 | Average, 1085.66 | B.t.u.'s. |
| | 1084 | | |
| | 1071 | | |
| Outlet Gas | 1066 | Average, 1069.33 | B.t.u.'s. |
| | 1071 | | |
| Loss due to gasoline extraction | | 16.33 | B.t.u.'s. |

The above tests are all from the same plant at different periods and the gasoline yield very closely the same at the time of each test. Calorimeter tests are not accurate to a degree closer than 4 B.t.u.'s. This error, which may be a plus or a minus error, makes the determination of the loss in heating value determinable only approximately by the calorimeter, since the error in measurement is so large a fraction of the quantity to be measured. However, the average of a large number of tests would show closely the loss due to extraction. The average of all the above tests shows a loss of 22.98 B.t.u.'s. per cu. ft. in heating value. For other data on this subject reference may be had to paper by G. A. Burrell, G. G. Oberfell and P. M. Biddison before the Natural Gas Association of America, Pittsburgh, 1916; and bulletin of Bureau of Mines, No. 88, page 60, and to articles appearing in the trade papers and journals.

The reduction in heating value noted above is so small as to have no effect on the value of the gas to the consumer, and of this total reduction a portion takes place during transmission of the gas without an absorption plant, due to the natural condensation of gasoline in the transmission lines. This condensation has been a source of endless trouble and expense in the past, due to the effect of the condensate upon rubbers used in pipe line couplings, and the elimination of this trouble and expense has been the prime reason for the installation of some of the largest plants.

The amount of this natural condensation, of course, varies with different installations but is surprisingly large when pains are taken to collect and measure the same. On one installation of which I have knowledge, the natural condensation before the installation of an absorption plant was equal to over one-third the yield obtained later by the absorption plant.

## OIL CITY INDUSTRIES HOLD OUTING.

The annual picnic of the National Transit Pump & Machine Company, the Oil Well Supply Company, and the Riverside Gas Engine Company, which was recently held at Monarch Park in this city, was attended by 5,000 workers and their families and guests. Every provision had been made for the enjoyment of the picnickers, and the affair was a great success.

## SPECIAL TAX UNFAIR.

**Lessee Operators of Indiana Leases Claim Injustice of Special Tax on Casinghead Gas.**

IN Oklahoma producers of casinghead gas are up in arms against any special tax on their product.

The opposition to such a measure was brought about by a letter from the Secretary of the Interior informing them that a royalty would hereafter be charged on the production of casinghead gas and asked them to forward to the Secretary at their earliest convenience all of the facts and figures connected with the manufacture of gas so that the Secretary may arrive at an equitable basis of royalty, the rate being left entirely with the Secretary.

One element in the interests represented, supported by the legal department of some of the corporations present at a recent meeting of producers, contended that as the producers had already paid royalty on the oil that is produced and as casinghead gas, till it is reduced to gasoline, is considered a component part of the oil always being found in or adjacent to the oil sand, they had already paid the royalty on casinghead gas and could not be taxed again as such a course would be contrary to law.

Another element present was of opinion that as casinghead gas is being sold as a separate commodity from oil and as it has attained a value in commerce which was not suspected at the time of the execution of the lease, in equity and conscience the lessor ought to derive some benefit from the discovery of the value of the gas. Those of this belief stated that they did not believe that the Secretary of the Interior would insist on an eighth of the value of casinghead gas as he would take into consideration the cost of manufacture and other essential parts of value.

A committee consisting of representative producers was appointed by the meeting to prepare a memorial to the Secretary of the Interior setting out the views of the casinghead gas producers of Oklahoma.

It was stated in the meeting that whatever might be the final action of the department it would not affect more than 10 per cent. of the production of casinghead gas in the State, as less than 10 per cent. of the leases are still under the jurisdiction of the department. But should the Secretary of the Interior raise the royalty on the producers operating Indian leases, it would disturb the market and place them at a disadvantage as compared with their competitors operating commercial leases, where a separate royalty on casinghead gas is not charged.

A situation of inequality would be difficult of adjustment, and this is one of the features which will be impressed upon departmental officials in the consideration of the matter.

# West Virginia Gas-Men

***The Men who Drill Wells, Who Cap Wells, Who Build Lines, Who Operate Compressor Stations, Who Overcome Physical Obstacles of the Field, Meet in Parkersburg, West Virginia.***

of next year's meeting at Huntington, West Va., a record-breaker. As Vice-President, Mr. E. V. Davison, of Crawford, West Va., was elected, while Secretary-Treasurer Robinson was re-elected, and rightfully so.

The barbecue was an out-of-doors affair. Great sides of beef, and all sorts of good things began to arrive on the evening preceding the barbecue. At once busy hands began the peeling of potatoes, the stringing of beans, etc., and when five o'clock came on the day appointed, mighty was the attack on this splendid provender.

The men of the West Virginia Natural Gas field will long remember the Parkersburg meeting, but every man of the field is already looking forward to the meeting at Huntington, where he will meet old and make new friends of the natural gas men from Kentucky. There is sure to be an excellent representation from over the line, though this is a West Virginia Assocation.

The outgoing president is to be congratulated upon the meeting that was held with him in the chair. The incoming president is to be congratulated upon his election, and the association is to be congratulated upon having chosen so excellent a man for the coming year.

List of Exhibitors.

N. C. Davison Gas Burner & Welding Company, Pittsburgh.
Burners and welding torches.

Rope & Cordage Company, Parkersburg, West Va.
Drilling rope and cable.

Natural Gas & Gasoline Journal.
Copies of Journal and general information.

Sprague Meter Company, Bridgeport, Conn.
Meter interior. In same booth the Clow Gasteam Radiators were shown.

M. L. Grove, Tylersburg, Pa.
Automatic safety gas cut off.

Garlock Packing Company, Palmyra, N. Y.
Samples of all types of rubber goods for oil and gas service.

Borden Company, Warren, Ohio.
Stock and dies.

Bessemer Gas Engine Company, Grove City, Pa.
Photographs showing Bessemer engines and installations.

Equitable Meter Company, Pittsburgh, Pa.
Iron meters, testing equipment, etc.

Gwynn Gas Burner & Engineering Company, Pittsburgh, Pa.
Burners of various sizes.

Hays Manufacturing Company, Erie, Pa.
Curb boxes. Tapping machines, valves.

Manhattan Rubber Company, Passaic, N. J., and Pittsburgh.
Samples of couplings, rings and belts.

J. E. Robinson & Company, Oil City, Pa.
Metal anchors for oil, gas, and water wells—3¼" to 6¼".

National Supply Company—Dayton Pipe Coupling Company, Pittsburgh, Pa.
Couplings, "Novo" pumping engine, belt, valves, etc. Threading tools. Reception.

Pittsburgh Valve Foundry & Construction Company, Pittsburgh, Pa.
Valves, fittings. Reception.

C. M. Heeter Sons & Company, Butler, Pa.
Packers, packer rubber.

Pittsburgh Meter Company, East Pittsburgh, Pa.
"Ironclad" meters. Westinghouse proportional meter cut apart to show working parts.

S. R. Dresser Manufacturing Company, Bradford, Pa.
Couplings, rubber rings, etc. Samples of couplings taken from first line laid with Dresser couplings (Fall of 1891) nearly 20 years ago, showing the couplings still in fine condition. Belting, packing rubber, rubbers for packers, etc.

Continental Supply Company, St. Louis, Mo.
Kelley wire line, drilling clamps, etc. Reception.

Jarecki Manufacturing Company, Pittsburgh, Pa.
Reception.

Carnegie Steel Company, Pittsburgh, Pa.
Pressed steel rim for wooden band wheels. Model of derrick and full drilling equipment. Sample of corner post of steel derrick showing anchorage for braces on corner sections.

Chaplin-Fulton Manufacturing Company, Pittsburgh, Pa.
Regulators; low pressure house regulator, high pressure regulator, Little Hercules, Vigilant oil level regulator; Differential gas relief valve, gas relief valve for gasoline plant, gas fuel boiler regulator; differential gas relief valve. Regulator interior displayed and explained by expert in charge.

Republic Iron & Steel Company, Youngstown, Ohio.
Reception booth.

Metric Metal Works, Erie, Pa.
Several sizes of meters, including iron and tin case, also 20-B design.

Parkersburg Rig & Reel Company, Parkersburg, West Va.
Models of drilling rig, drilling machines, etc. Photographs of the equipment.

Ingersoll-Rand Company, Pittsburgh, Pa.
Reception.

Revere Rubber Company, Chelsea, Mass.
Packer rubber, belting, etc.

Oxweld Acetylene Company, Newark, N. J., Chicago, Los Angeles.
Welding and cutting equipment. Samples of Tees, Ys, etc. Equipment shown in operation.

Oil Well Supply Company, Pittsburgh, Pa.
"Novo" pumping engine, valves, drilling bits, of several designs.

No more interested audiences did manufacturers ever have than had the manufacturers who exhibited to the practical men of the natural gas field, down at Parkersburg. The men were there to find out "why," to learn "how," to see "the best," to go home with a better knowledge of what the equipment field has for the producing field.

## OSAGE LEASE APPROVED.

The Interior Department has approved a gas lease for the Osage Nation to the city of Pawhuska. The Pawhuska Oil & Gas Company has a franchise and a lease from the Osage for a period of 25 years to furnish gas for domestic purposes. The lease approved asked for gas for industrial purposes, but upon recommendation of Commissioner Sells a clause was inserted in the lease providing that if it should become necessary the city should have use of this gas for domestic purposes.

# Deep Well Drilling

## *A Very Complete Resume of Instances of Deep Well Drilling in the United States.*

By A. R. GRAY.

Presented Before 1917 Meeting of the Natural Gas Association of America.

THE gradual exhaustion of oil and gas has stimulated an effort to secure deeper producing horizons in regions in which compressor stations and pipe lines have been constructed.

That drilling to great depth can be successfully carried on seems open to little doubt. In 1860 when the search for oil and gas was actively begun in the Appalachian Basin, few, if any, wells were drilled as deep as 1,000 ft. In 1890 when development was at its height 3,000 ft. was considered an unusual depth. By 1910 several holes had been drilled to a depth of more than 5,000 ft. and at the present time at least two (2) wells in the world have been drilled more than 7,000 ft. deep.

In 1898 the Forest Oil Co. drilled what at that time was the deepest well in the U. S. This well was drilled at West Elizabeth, Allegheny County, Pennsylvania, 12 miles southeast of Pittsburgh on the Wm. Bedell Farm. It was the intention to drill to the corniferous Limestone, but owing to an accident the tools and 1,000 foot of cable were left in the hole at 5,575 feet. Every effort was made to fish them out but without success; then an effort was made to dissolve the tools and cable with sulphuric acid, but after two years of effort the hole was finally abandoned. The following record of the Bedell well shows the formations, temperatures, casings, etc.

| | | | | |
|---|---|---|---|---|
| Slate | 40 | to | 40 | |
| Bottom of 10" casing at | 40 | " | 50 | |
| Limestone | 10 | " | 50 | |
| Shales | 80 | " | 130 | |
| Slate | 105 | " | 235 | |
| Sand | 30 | " | 265 | |
| Slate | 40 | to | 305 | |
| Coal (Bakerstown) | 3 | " | 308 | |
| Slate | 100 | " | 408 | |
| Bottom of 8¼" Csg. at | 350 | " | 350 | |
| Coal | 2 | " | 410 | |
| Slate | 75 | " | 485 | |
| Sand | 40 | " | 525 | (Temperature 57° Fahr.) |
| Shale | 10 | " | 535 | |
| Coal (L. Freeport) | 2 | " | 537 | |
| Slate | 25 | " | 562 | |
| Sand | 65 | " | 627 | |
| Shale | 15 | " | 642 | |
| Coal (M. Kittanning) | 3 | " | 645 | |
| Limestone | 10 | " | 655 | |
| Slate | 30 | " | 685 | |
| Limestone | 15 | " | 700 | |
| Slate | 50 | " | 750 | |
| Sand | 35 | " | 785 | |
| Slate | 5 | " | 790 | |
| Salt Sand | 95 | " | 885 | |
| Slate and shells | 115 | " | 1000 | |
| Slate | 30 | " | 1030 | |
| Red Rock | 20 | " | 1050 | |
| Limestone (Big M't., etc) | 50 | " | 1100 | |
| Big Injun | 310 | " | 1410 | |
| Bottom of 6¼" casing at 1320' | ... | " | 1320 | |
| Slate and Shells | 60 | " | 1470 | |
| Sand | 15 | " | 1485 | |
| Slate | 7 | " | 1492 | |
| Sand | 5 | " | 1497 | |
| Slate | 18 | " | 1515 | |
| Sand, (Berea?) | 50 | " | 1565 | |
| Slate and shells | 60 | " | 1625 | |
| Limestone | 10 | " | 1635 | |
| Slate and Shells | 100 | " | 1735 | |
| Sand (Gantz?) | 25 | " | 1760 | |
| Slate and shells | 20 | " | 1780 | |
| Limestone | 10 | " | 1790 | |
| Slate | 20 | " | 1810 | |
| Sand | 15 | " | 1825 | |
| Slate and shells | 45 | " | 1870 | |
| Sand | 20 | " | 1890 | |
| Slate | 5 | " | 1895 | |
| Sand ("Thirty-foot") | 40 | " | 1935 | |
| Slate | 3 | " | 1938 | |
| Sand } "Stray" { | 18 | to | 1956 | |
| Slate } "Stray" { | 30 | " | 1986 | |
| Sand } "Stray" { | 7 | " | 1993 | |
| Red Rock | 3 | " | 1996 | |
| Sand, (Gordon, Third, etc.) | 65 | " | 2061 | |
| Red Rock | 5 | " | 2066 | |
| Sand (Fourth) | 30 | " | 2096 | |
| Red Rock and shells | 15 | " | 2111 | |
| Slate and shells | 15 | " | 2126 | |
| Sand | 5 | " | 2131 | |
| Slate | 4 | " | 2134 | |
| Sand | 18 | " | 2152 | |
| Redrock and shells | 30 | " | 2182 | |
| Sand (Fifth or McDonald) | 25 | " | 2207 | |
| Redrock and shells | 35 | " | 2242 | |
| Slate | 10 | " | 2252 | (Temperature 64° Fahr.) |
| Sand | 5 | " | 2257 | |
| Slate and shells | 25 | " | 2282 | |
| Sand (Bayard) | 5 | " | 2287 | (Gas, volume 25 lbs. per min.) |
| Sand | 10 | " | 2297 | |

| | | |
|---|---|---|
| Redrock | 25 " | 2322 |
| Slate and shells | 75 " | 2397 (Temperature 78° Fahr.) |
| Sand (Elizabeth) | 3 " | 2400 |
| Shells | 200 " | 2600 |
| Slate | 150 " | 2750 |
| Slate and shells | 200 " | 2950 |
| Slate | 100 " | 3050 |
| Limestone and shells | 100 " | 3150 |
| Sand (Speechley?) | 15 " | 3165 |
| Slate | 335 " | 3500 |
| Sand (Bradford), trace of oil | 20 " | 3520 |
| Slate and shells | 175 " | 3695 |
| Slate and shells | 195 " | 3890 |
| Slate and shells | 140 " | 4030 |
| Slate and shells | 180 " | 4210 |
| Slate and shells | 190 " | 4400 |
| Slate and shells | 75 " | 4475 |
| Slate | 23 " | 4498 |
| Shells | 2 " | 4500 |
| Slate | 32 " | 4532 |
| Shells | 13 " | 4545 |
| Slate | 25 " | 4570 |
| Limestone | 20 " | 4590 |
| Slate | 10 " | 4600 |
| Sand | 30 to | 4630 |
| Slate | 40 " | 4670 |
| Limestone | 20 " | 4690 |
| Slate | 20 " | 4710 |
| Shells | 15 " | 4725 |
| Slate | 15 " | 4740 |
| Slate and shells | 10 " | 4750 |
| Sand | 20 " | 4770 |
| Slate | 10 " | 4780 |
| Limestone | 10 " | 4790 |
| Slate | 20 " | 4810 |
| Shells | 10 " | 4820 |
| Slate | 20 " | 4840 |
| Limestone | 15 " | 4855 |
| Slate | 20 " | 4875 |
| Shells | 10 " | 4885 |
| Slate | 5 " | 4890 |
| Slate and shells | 10 " | 4900 |
| Slate | 15 " | 4915 |
| Shells | 5 " | 4920 |
| Slate | 30 " | 4950 |
| Shells | 5 " | 4955 |
| Slate | 45 " | 5000 |
| Limestone | 10 " | 5010 (Temperature 120° Fahr.) |
| Slate | 10 " | 5020 |
| Slate and shells | 10 " | 5030 |
| Slate | 20 " | 5050 |
| Limestone | 10 " | 5060 |
| Slate | 10 " | 5070 |
| Slate and shells | 10 " | 5080 |
| Slate | 10 " | 5095 |
| Slate and shells | 5 " | 5100 |
| Limestone | 5 " | 5085 |
| Slate | 30 " | 5130 |
| Limestone | 10 " | 5140 |
| Slate | 20 " | 5160 |
| Limestone | 10 " | 5170 |
| Slate | 10 " | 5180 |
| Limestone | 50 " | 5230 |
| Slate | 30 " | 5260 |
| Limestone | 10 " | 5270 |
| Slate | 20 " | 5290 |
| Limestone | 5 " | 5295 |
| Slate | 25 " | 5320 |
| Limestone | 10 " | 5330 |
| Slate | 30 to | 5360 |
| Limestone | 5 " | 5365 |
| Slate | 15 " | 5380 (Temperature 127° Fahr.) |
| Limestone | 10 " | 5390 |
| Slate | 20 " | 5410 |
| Slate and shells | 20 " | 5430 |
| Slate | 15 " | 5445 |
| Limestone | 5 " | 5450 |
| Slate | 20 " | 5470 |
| Slate and shells | 10 " | 5480 |
| Slate | 20 " | 5500 |
| Slate | 75 " | 5575 (Bottom of 6¼" hole.) |

Since the drilling of the Bedell well there have been at least a dozen wells drilled to a depth of from 4,000 to 5,500 feet, in addition to which the Hope Natural Gas Company has twenty-five (25) deep wells located and drilling in West Virginia. It has completed eight (8) deep wells at an average depth of 4,600 feet below the Pittsburgh Coal. It also drilled one well to 6,390 feet, but unfortunately plugged the hole at that depth.

There is a well drilling at Valcano, West Virginia, in which this company has 4,000 feet of 10" hole. Unless production is found, the well may be a very deep well when completed as the great depth of 10" hole will give a good chance to continue. There is also a well drilling on the Goff farm near Clarksburg, West Virginia, in which there is already 6,500 feet of 8" hole.

The deepest well in the world at the present time was drilled to a depth of 7,349 feet at a location near Luchow, Germany.

The next deepest well in the world and the deepest in the United States is being drilled by the Peoples Natural Gas Company on th R. A. Geary farm in Washington County, Pennsylvania, near McDonald. At the present time this well is 7,247 feet in depth and delayed by a fishing job.

This well was commenced November 7, 1911. The rig is of oak, 26 foot base and is 90 feet high, double legged and the legs reinforced by having 6 x 6 oak timber run from base to crown block inside of legs. The band wheel is 13 feet in diameter, with 7½" shaft, bull wheels, 24 feet in diameter with 6" steel gudgeons using three (3) tug ropes and 2-12" brake bands. The sand reel is 15 feet long, with 5" shaft and 43" friction pulley.

The engine used is a 14 x 14 Ajax 52 H.P.; steam being furnished by two 25 H.P. boilers. The belt was specially made and is 105 feet by 16".

The tools used were all standard.

The crown pulley is a special wire line pulley 38" in diameter with 6" steel gudgeons and weighs 700 pounds.

Up to the present time there have been ten cables and three sand lines used.

The first cable used was a 1" wire line cable 7,000 feet long.

The next seven (7) cables were 8,000 feet long and on account of the weight were built specially, being tapered,

1¼", 1⅛" and ⅞" respectively, the taper being about 500 feet long. The last two (2) cables were 10,000 feet long and were 1¼", 1⅛", 1" and ⅞" taper being about 150 feet long. All of the cables except the first one were made to special order.

The sand lines used were 9/16" x 8,000 feet.

In drilling a 16" hole was started and at 232 feet a string of 13" casing was put in. The 13" hole was drilled to 1,050 feet and a string of 10" casing put in, 10" hole drilled to 1,969 feet and a string of 8¼" casing put in, 8¼" hole to 6,053 feet and a string of special 6" casing 6,053 feet weighing 68 tons put in, 5¾" hole drilled to 7,247 feet, and a string of special 4¼" I. D. x 5¼" O. D. casing, weighing 62 tons put in. This string of casing had welded joints instead of collars, making it one continuous piece.

There have been a large number of fishing jobs on this well. At one time there were three (3) strings of tools in the hole together.

From 4,850 feet to 6,060 feet there were pockets of gas which blew the tools up in the hole and kinked the cable causing it to break. These were not serious fishing jobs, as two or three days' work would usually clear the hole. The pockets of gas were formed at 4,850, 4,870, 5,900, 5,905, 5,910, 5,915, 6,060. The gas did not continue to flow, seeming to exhaust with the first puff.

There was a string of tools and 4½" baler lost at 6,065.

After a long, tedious fishing job it was decided to drill by them. This was done and the tools were cased off. Another string was struck at 6,925. After an unsuccessful effort to get these tools, the company again drilled by them and went to a depth of 7,181, when the first string slipped down catching the second string at the bottom of the hole. After a long fishing job the top string was fished out but the drillers were unable to get the bottom string. Again they drilled by them and cased them off.

After putting in the last string of casing drilling was again commenced. After making about 17 feet the casing collapsed catching the tools at the bottom of the hole.

At present they are endeavoring to get casing and tools out.

At a depth of 6,260 feet a large body of salt water was struck which filled up the hole 4,000 feet. The specific gravity of the water was 1.1085 and an analysis shows as follows:

PARTS PER 100,000.

| | |
|---|---|
| **Alkalinity as calcium carbonate** | 5.50 |
| **Calcium chloride** | 4,421.40 |
| **Magnesium chloride** | 251.60 |
| **Sodium chloride** | 5,018.20 |
| **Sulphuric anhydride** | Trace |
| **Iron oxide** | Trace |
| **Sediment (rock powder)** | 224.60 |
| **Total solids** | 9,921.30 |
| **Total solids exclusive of pulverized rock sediment** | 9,696.70 |

**The record of the formation and temperatures following are of interest.**

R. A. GEARY WELL NO. 770.

110′ Below Coal.

| *Formation.* | *Top Feet.* | *Bottom Feet.* | |
|---|---|---|---|
| Conductor | 16 | .... | |
| 13" Casing | 232 | .... | |
| Limestone | 450 | 470 | |
| Slate | 470 | 595 | |
| Freeport Coal | 595 | 600 | |
| Water | 600 | .... | |
| Gas | 760 | .... | |
| Salt Sand | 734 | 950 | |
| Gas | 912 | .... | |
| Pencil Cave | 950 | 953 | |
| Big Lime | 953 | 982 | |
| 10" Casing | 953 | .... | |
| Big Injun Sand | 982 | 1241 | |
| Gas | 1052 | .... | |
| Squaw Sand | 1378 | 1392 | |
| Gas | 1379 | .... | |
| Sand | 1610 | 1622 | |
| Hundred Foot Sand | 1794 | 1817 | |
| Gas | 1797 | .... | |
| Thirty Foot Sand | 1910 | 1925 | |
| Gas | 1912 | .... | |
| Gordon Stray | 1968 | 1971 | |
| 8¼" Casing | 1969 | .... | |
| White Slate | 1971 | 2990 | |
| Limestone | 2990 | 3210 | |
| White Slate | 3210 | 3440 | |
| Reduced Hole | 3440 | .... | |
| Limestone | 3440 | 3450 | |
| White Slate | 3450 | 4100 | |
| Sand and Lime | 4100 | 4170 | |
| White Slate | 4170 | 4520 | |
| Black Slate (Temp. 5150′—110° Fahr.) | 4520 | 4550 | Explosive Gas Flow at 4850′-4870′ |
| White Slate (Temp. 5220′—120° Fahr.) | 4550 | 5200 | |
| Black Slate | 5200 | 5320 | |
| Black Shale | 5320 | 5520 | |
| White Slate | 5520 | 5660 | |
| Limestone (Suposed Guelph) | 5660 | 5680 | |
| Black Lime (Supposed Niagara) | 5680 | 5788 | Explosive Gas Flow at 5900′-5905′-5910′ |
| Black Slate (Temp. at 5800′—140° Fahr.) | 5788 | 6008 | |
| Black Lime | 6008 | 6023 | 5915′ |
| Flint (Temp. at 6000′—100° Fahr.) | 6023 | 6045 | Explosive Gas Flow at 6060′ |
| Gray Sand | 6045 | 6200 | |
| 6⅝" Casing | .... | 6053 | |
| Water and Gas | 6045 | .... | Temp. at 6095′—156° Fahr. |
| Brown Sand | 6200 | 6260 | |
| Water | 6260 | 6265 | |
| White Sand | 6260 | 6270 | Taken in water at 6270′—156° Fahr. |
| Brown Sand | 6270 | 6315 | |
| Black Lime | 6315 | 6395 | |
| Sand and Black Flint | 6395 | 6405 | |
| Black Lime | 5405 | 6515 | |

| | | |
|---|---|---|
| White Sand | 6515 | 6530 |
| Gas | 6522 | .... |
| Water | 6520 | 6530 |
| Black Limestone | 6530 | 6610 |
| Gray Limestone | 6610 | 6700 |
| Rock Salt | 6700 | 6708 |
| Lime and Sand | 6708 | 6775 |
| Rock Salt | 6775 | 6785 |
| Limestone | 6785 | 6830 6925 |
| Rock Salt | 6830 | 6870 |
| Lime and Sand | 6840 | 6860 |
| Rock Salt | 6860 | 6865 |
| Limestone | 6865 | 6870 |
| Rock Salt | 6870 | 6875 |
| Limestone | 6875 | 6895 |
| Rock Salt | 6895 | 6900 |
| Limestone | 6910 | 6925 Tools |
| Limestone and Sand | 6925 | 7020 |
| Salt and Lime Shells | 7020 | 7040 |
| Sand and Lime | 7040 | 7247 |

Another interesting feature, in case gas is found at these depths is the enormous rock pressure which is likely to be encountered. On the basis of known pressures, the pressure should be over 3,000 pounds.

The producing formation which the company is searching for in the deep hole is explained by Dr. I. C. White in his "Note on a Very Deep Well Near McDonald, Pennsylvania," extracts from which follow.

### LOCATION AND DEPTH OF WELL.

To Pennsylvania belongs the honor of the deepest boring in America. A well on the land of R. A. Geary, about five miles northwest from the town of McDonald, near the line between Allegheny and Washington counties, has now attained a depth of 6,052 feet. This hole is being drilled by The Peoples Natural Gas Company, a former subsidiary of the Standard Oil Company, of which Mr. John G. Pew, of Pittsburg, is president and L. F. Barger general superintendent, and it is through their courtesy and that of Mr. J. B. Corrin, assistant superintendent of the Hope Natural Gas Company, that the writer was given access to the geologic data developed by the boring. Mr. Pew has chosen for the location of this deep well test the summit of the Condor dome, a structural feature in the rocks described in the Burgettstown-Carnegie Folio by E. W. Shaw and M. J. Munn, of the United States Geological Survey. On this dome the Pittsburgh coal attains an elevation of 1,180 feet above tide, the well mouth being at 1,050 feet, or 130 feet lo[w] thus beginning at exactly the same geologic horiz[on] the deep well (5,575 feet) drilled on the farm of W[.] Bedell, 20 miles southeast of the Geary well, [in] beth, Allegheny County, Pennsylvania, by t[he] Young, of the Forest Oil Company, the [re]which is published in volume I (A) of t[he] Geological Survey, pages 103-107, an[d] the deepest boring in the United Sta[tes] part of 1912, when it was surpasse[d] described and by another in West [Vir]now atained a slightly greater (5,[7]

### PURPOSE OF THE WELL.

The Condor dome of the Burgettstown quadrange has already produced a large quantity of gas from the Pottsville, Big Injun, "Hundred-foot," and Thirty-foot Sands, and Mr. Pew and his field superintendent, Mr. Barger, concluded that this region, from which the strata dip in every direction, would be a good location to make a test for any oil or gas bearing sands that might be found lower in the geologic column, hoping finally to reach the *Clinton* and even the *Trenton* Limestone, the two great gas-bearing and petroliferous horizons of Ohio. The writer figures that the Clinton horizon should be struck in this well at about 7,000 feet and the Trenton at approximately 8,000 feet.

### METHOD OF CONSTRUCTION.

A steel cable is in use, the derrick has double strength and a larger engine and more boiler capacity have been provided than in drilling wells to the usual depths, so that Mr. Pew confidently expects to make the Geary well the deepest one in the world. Some trouble has been experienced by the caving of the walls in the soft shales above the Corniferous limestone, but when the temporary fishing job now on hand (a set of tools having been caught by the caving shales) is completed, the bore-hole will be lined with steel casing, so as to prevent any further trouble from caving.

### RESULTS OF TEMPERATURE DETERMINATION.

As is well known, Prof. William Hallock, of Columbia University, made careful temperature tests on the West Elizabeth or Bedell well down to a depth of 5,[000] feet, where the temperature was 120.9° Fahrenheit. [Later] he also tested the Wheeling, West Virginia, deep [well], finding a temperature of 110.3° Fahrenheit at 4,500 [feet], and the two wells agreed very closely in temperature throughout at the same depth. Figured on the basis of increase from 4,500 feet to 5,000 in the Bedell well, a temperature of about 144° Fahrenheit should be found in the Geary well at 6,052 feet, its present depth, and this estimate is probably very nearly correct, since Mr. Pew reports that a temperature of 140° Fahrenheit was recorded at 5,800 feet in the Geary well, which is [about] what the West Elizabeth and Wheeling results indicate for that depth.

### DISCUSSION OF THE SECTION.

[The] interval [from] the Pittsburgh coal well from the base [of] the Conemaugh to the top of the Corniferous, 1,[886] feet, while on the [line] to Akron, Ohio, 115 miles [away] it is 1,800 feet. The [rate] of increase rapidly [to] Akron, Ohio, [the] thickness of 1,86[0] feet, while from Ak[ron] 115 miles, this thick[ness] 1,800 feet, continues [to] increase 1,800 feet to the mile [for] 115½ feet to the mile [to] establish a convenient me[an] at which the Corn[iferous]

rocks, since a regular sandstone bed, the Deckers Ferry sandstone of Monroe County, Pennsylvania, sometimes occurs well down toward the base of this group of rocks.

Mr. Pew and Mr. Barger will make every effort that financial resources and drilling talent can supply to sink this well to a depth of 8,000 feet, thus making it the deepest well in the world and rendering available a knowledge of the thickness and character of the underlying Paleozoic beds of this interesting locality, so far removed from any exposure of these rocks, the nearest Oriskany outcrops being at Altoona, Pennsylvania, and Keyser, West Virginia, each of which is nearly 100 miles distant and in the heart of the Allegheny Mountains.

The great reduction in temperatures found at 6,000 feet is due to the sudden expansion of natural gas, a small flow of which under great pressure (probably 2,500 pounds or more to the square inch) was encountered near and below that horizon. The temperature of 156° Fahrenheit, recorded first at 6,095 feet, is, however, so much greater (156° to 140°), namely 16°, than that (140°) recorded at 5,800 feet that it probably was elevated a few degrees by the pounding of the drill in the hard sandstone, and this looks all the more probable, since the water found at 6,250 feet has only the same temperature (156°), which itself reveals a rapid increase in gradient below 5,800 feet, or at the rate of 1 degree for every 29 feet. The results of other temperature measurements on this well at greater depths will prove of surpassing interest.

NO DISCUSSION FOLLOWED THIS PAPER.

## NEW GASOLINE METHOD.

**A Process Recently Developed Now in Practical Operation and of Interest to Those Producing Gasoline.**

AFTER twenty-five years experience in oil, a large part of which time was spent in experimenting with the refining of crude oil from various fields throughout the world, Dr. C. B. Forward of Urbana, Ohio, reports having developed a new, efficient and economical method for making gasoline for internal combustion engines from crude oil. Several patents are granted and pending on his process in the United States and foreign countries.

He has erected a plant at Urbana, Ohio, in which he has installed a commercial unit for his apparatus, capable of handling 100 barrels of crude oil per day. While this plant was put up primarily for the purpose of demonstrating his process to various oil refiners throughout the country, it proved so satisfactory to those interested with him in it, that his associates voted to increase the capitalization of their company to $1,000,000 and increase the capacity of the plant and operate it commercially.

The corporation is known as The Oil Refining & Development Company, its president being C. B. Forward, President.

The company has a number of prominent manufacturers, automobile and business men of high standing as stockholders who are greatly interested in the proposition and who are all boosters.

The process is a simple one and it is claimed they have no carbon difficulties to contend and that the apparatus is just as clean when they are through running as when they started.

The boiler employed in the process carries a pressure of 300 pounds, the steam passes from the boiler through a superheater placed in the triangular space between the water tubes connecting the drums of the boiler. In this superheater the steam is heated to a temperature of 625 degrees to 650 degrees F., and then passes through an auxiliary coil in front of the water tubes and nearer the fire when it receives its final superheat of 850 degrees.

From this point it passes through a covered pipe, entering each of the four separators or stills separately. When starting up the plant this superheated steam is allowed to run into these stills until the temperature and pressure get up to the desired point in each of the stills as shown on the gauge board in front of the first still on the left. When the desired temperature is secured the oil is turned into the first still, the same being previously heated by passing through a steam jacketed pipe, located between the oil pump and the still.

The heated oil is met at the opening in the still by the incoming superheated steam which atomizes it, breaking it up into a fine spray of oil. When this spray of oil strikes the temperature and pressure within the still, a large portion of it is immediately converted into vapor which rises through the dome which is filled with baffle plates that allow only the lighter vapors to pass out.

The unvaporized residue falls to the bottom of the still and is forced by the pressure therein to the next still where it in turn is met by the incoming superheated steam where the same occurs as in the first still. This operation is repeated into the third and the fourth stills.

From the fourth still the residue is forced by the pressure therein through a pipe leading to the storage tank 300 feet away. The vapor from all the stills passes into a common header and is all condensed together into one common grade of gasoline for internal combustion engines. From the condenser the gasoline flows by gravity to the storage tank 400 feet away.

## CARBURETOR AND FUELS.

AN interesting statement received from Los Angeles, Cal., indicates that a carburetor has been devised and tested which, it is said, provides for the use of fuels from synthetic gasoline to pure alcohol on any type of automobile using this carburetor. The change in order to adjust it for the different fuels, is merely to govern the amount of fuel passing the carburetor, the control of this being accomplished on the steering wheel where a control is placed.

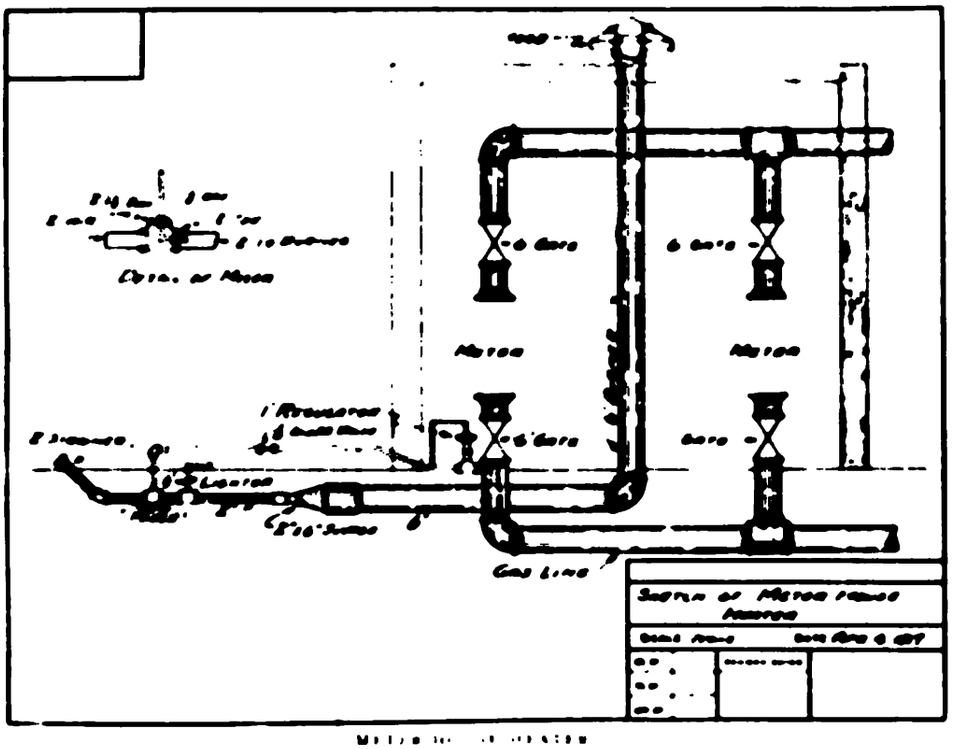
The invention is by J. W. Corser of Los Angeles, and was recently tried-out on the Ascot speedway where a stock Studebaker car was taken and the Corser carburetor installed in place of the carburetor formerly on the car. The results of the test indicated the following:

| | Miles per Gal |
|---|---|
| Synthetic gasoline | 20.0 |
| Gasoline | 14.4 |
| Kerosene | 13.6 |
| Benzine | 15.2 |
| Alcohol | 8.8 |
| Distillate | 17.6 |
| Distillate (another brand) | 18.4 |
| Benzine and distillate | 16.0 |

## METER HOUSE HEATER.

[illegible]

The following drawing shows a heater used for meter or regulator houses. I believe the drawing needs no explanation.

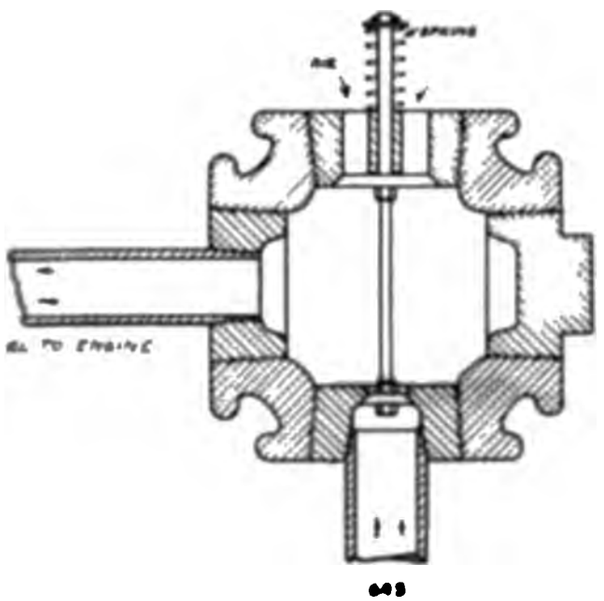


Meter house heater

## MIXER FOR SMALL GASOLINE ENGINE

[illegible]

The following article describes how to make three simple pieces and a [illegible] inch bushing were used to make a mixing [illegible] for natural gas and [illegible] which attaches to an engine [illegible] gas is used using a [illegible] [illegible] was required. The area of the air opening [illegible] the area of the gas opening depending upon the kind of gas used.




MIXER FOR SMALL GASOLINE ENGINE TO BURN NATURAL GAS

## TABLE SHOWING THE ACCURACY OF METER

[illegible]

[illegible] tests were made with [illegible] pressure [illegible] and were rather skeptical regarding the accuracy of the gas meter at low pressure gas [illegible] I have completed this table of [illegible] tests [illegible] meter at [illegible] pressure [illegible] under these various pressures.

The meter tested was a [illegible] meter with [illegible] inlet and the two tests [illegible] one with the gas coming and the other with the gas going.

[illegible] pressure [illegible] meter was [illegible] and that above the pressure [illegible] deviation [illegible] the actual per cent age

The column showing the duration of time in minutes and seconds for 10 cu. ft. to pass through the meter is very interesting.

| Pressure Inch Water | Pressure Oz. | Quantity Meter | Quantity Tank | Per Cent. Error | Time to Pass 10 Cu. Ft. Gas |
|---|---|---|---|---|---|
| Outlet 1" Opening | | | | | |
| 0.5" | 0.3 | 10.00 cu. ft. | 9.85 cu. ft. | +1.52 | 6'—30" |
| 1.25" | 0.73 | 10.00 " | 10.08 " | —0.79 | 3'—40" |
| 1.75" | 1.03 | 10.00 " | 10.09 " | —0.89 | 2'—40" |
| 2.375" | 1.39 | 10.00 " | 10.06 " | —0.60 | 2'—20" |
| 2.375" | 1.69 | 10.00 " | 10.06 " | —0.60 | 2'—05" |
| 3.275 | 2.00 | 10.00 " | 10.09 " | —0.89 | 1'—55" |
| 4.000 | 2.30 | 10.00 " | 10.09 " | —0.89 | 1'—45" |
| 5.200 | 3.00 | 10.00 " | 10.14 " | —1.38 | 1'—35" |
| Outlet ¼" Opening | | | | | |
| 0.5" | 0.3 | 10.00 cu. ft. | 9.85 cu. ft. | +1.52 | 9'—05" |
| 1.25" | 0.73 | 10.00 " | 10.08 " | —0.79 | 5'—20" |
| 1.75" | 1.03 | 10.00 " | 10.13 " | —1.28 | 4'—03" |
| 2.375" | 1.39 | 10.00 " | 10.14 " | —1.38 | 3'—35" |
| 2.875 | 1.69 | 10.00 " | 10.16 " | —1.57 | 3'—15" |
| 3.375 | 2.00 | 10.00 " | 10.15 " | —1.48 | 3'—03" |
| 4.000 | 2.30 | 10.00 " | 10.13 " | —1.28 | 2'—50" |
| 5.200 | 3.00 | 10.00 " | 10.16 " | —1.57 | 2'—30" |

The information given in this table is absolutely essential to all employes of companies, who have the gas shortage condition confronting them during severe weather.

## EMBLEM TO DOHERTY INTERESTS.

**A Late Comer in the Natural Gas Field Carries Away the Honor Roll for greatest mileage of those representing the Institution at Natural Gas Convention.**

SOME years ago Henry L. Doherty was operating wholly in the manufactured gas field. He was a well known figure at the head of the Denver Gas & Electric Company of Denver, Colo., where associated with him, then as now, was Mr. Frank W. Frueauff, then of Denver.

Mr. Doherty was a leading light in what was known in those days as the Ohio Gas Light Association, probably the most active, commercially speaking, of any gas association of those days, while at a later date Mr. Frueauff was vice-president and later president of the National Commercial Gas-Association, the commercial organization of the manufactured gas field.

In more recent years Mr. Doherty, under the title, Henry L. Doherty & Company, has become active in the hydro-electric field, and in the general electric enterprise, and as well in the natural gas business of the country.

Here is a recent comer from the artificial gas field, his institution full of ginger and "pep," taking the shield of honor in the natural gas field, a shield beautifully wrought by order of the Metric Metal Works, Erie, Pa., and presented by them after the meeting of the Natural Gas Association of America recently held in Bucalo, with the words engraved upon it, "To Henry L. Doherty of Henry L. Doherty & Company, as a means of notably recording the fact that representatives of that institution covered a total mileage of 59,718 miles in attending the Natural Gas Convention."

Mr. Doherty, Mr. Frueauc, and other officers of Henry L. Doherty & Company have always stood for

convention-representation, convention-activities, and convention-co-operation, and before us we have evidence of the fact that what has been the attendance rule of this live institution in the artificial gas field, is also its rule in the natural field.

It was an exceedingly clever act on the part of the Metric Metal Works, this preparing of so beautiful a "shield of honor" to be presented to the company producing the greatest mileage in the attending of its employees. At the same time it is both a fine example to others, and a most creditable matter to have won this shield of honor by the interests of Mr. Doherty.

## LIFE SAVING CHART AND INSTRUCTIONS.

The Bureau of Mines at Washington has just issued a chart on the subject of resuscitation from gas asphyxiation, drowning, and electric shock, copies of which may be had to hang in the office and in the plant on applying to the Bureau.

This chart is suitable for posting in all industrial establishments in which there is danger from gas asphyxiation, drowning, or electric shock.

The chart shows the Schaefer, or prone, pressure method of artificial respiration, which is the latest and most approved method advocated by eminent physiologists of the country.

The bureau is issuing this chart in the hope of inducing the adoption of this standard method of resuscitation throughout the country and with the hope that the instructions presented on the chart may result in the saving of human life.

# RESULTS OF DRILLING—LATEST REPORTS

## PENNSYLVANIA FIELD.

### ALLEGANY FIELD

| | |
|---|---|
| W. Scott Iroquois Nat Gas | Gas |
| [illegible] McKean Nat Gas | Gas |
| W. Scott Potter Gas | Gas |
| Total | 1 |

### BRADFORD FIELD

| | |
|---|---|
| [illegible] Corey Farm Oil Co. | Dry |
| Twin Lick South Penn Oil Co. | Gas |
| Dry | 1 |
| Gas Well | 1 |

### MIDDLE FIELD

| | |
|---|---|
| [illegible] Norman & Rankin | Dry |
| [illegible] S. P. Oil | Dry |
| T. & W. Oil Co., Citizens Banking | Gas |
| [illegible] Nat Gasoline | Dry |
| [illegible] Limestone Oil | Gas |
| T. & W. Oil Co., Byers & Devereaux | Dry |
| [illegible] Johnson & Myers Prop. | Gas |
| [illegible] D. Collins Est. | Dry |
| [illegible] Proper | Dry |
| Gas | 6 |
| Gas Wells | 1 |

### VENANGO-CLARION

| | |
|---|---|
| [illegible] S. L. McClelland | Dry |
| [illegible] & Byers Slum Rock Gas | Gas |
| [illegible] Gas McQuiston | Dry |
| Venango County | |
| [illegible] Nat Gas | Gas |
| [illegible] Knight Gas | Dry |
| Clarion County | |
| [illegible] Jefferson Gas | Dry |
| Gas | 2 |
| Dry | 4 |

### BUTLER-ARMSTRONG

| | |
|---|---|
| W. [illegible] Campbell, Metcalf & [illegible] | Dry |
| [illegible] Sons & Emerick | Gas |
| [illegible] & Co. | Dry |
| [illegible] McElhaney & Co. | Gas |
| [illegible] & Co. | Gas |
| [illegible] Wm. H. Rath | Dry |
| [illegible] Troutman Oil & Gas | Gas |
| Dry | 9 |
| Gas | 1 |

### SOUTHWEST PENNSYLVANIA

| | |
|---|---|
| Washington | |
| [illegible] & Co. | Dry |
| [illegible] Mrs. J. A. | Gas |
| [illegible] Mrs. [illegible] & Gas | Gas |
| [illegible] & Co. | Gas |
| Greene County | |
| [illegible] Waller & Co. | Dry |
| [illegible] & Co. | Gas |
| [illegible] Kinney | Dry |
| Fayette | |
| [illegible] Nat Gas Co. | Dry |
| [illegible] & Server | Dry |
| Kratz, Booker & Co. | Gas |
| Roll, Maitland & Co. | Dry |
| Bolau, Shaffer & Co. | Dry |
| P. I. Co., Waller & Co. | Dry |
| Headland Heck & Co. | Dry |
| Bellevue | |
| Cook & McConnell & Co. | Gas |
| Duff City | |
| Leibolt, McCormick & Co. | Dry |
| Burgettstown | |
| Brown R. & Gallespie | Dry |
| Imperial | |
| Hayes, Armour & Co. | Dry |
| Beaver County | |
| Leeper McDonald parties | Dry |
| Cameron, Chester & Imperial | Dry |
| Thompson Sisters & W. Dam. | Dry |
| Midtown | |
| Stettler I. W. Phillips & Co. | Dry |
| Mt. Morris | |
| Phillips Peoples Gas | Gas |
| Stoneking Peoples Gas | Dry |
| Manning Peoples Gas | Gas |
| Cole, Phila Co. | Gas |
| Morrow, Sr. P. | Gas |
| Conklin Phila Co. | Gas |
| Stewart Mrs. I. & H. | Gas |
| Dry | 11 |
| Gas | 12 |

## WEST VIRGINIA

| | |
|---|---|
| Marion | |
| [illegible] Hunter & Nelson | Gas |
| Stewart [illegible] | Dry |
| [illegible] Sr. [illegible] | Gas |
| [illegible] | 1 |
| Alfred Hughes Gas | Dry |
| Lamm Phila Co. | Gas |
| Freeman Carter Co. | Dry |
| Straight St. Conrad & Gas | Gas |
| [illegible] Phila Co. | Gas |
| [illegible] | Gas |
| [illegible] Gas | Gas |
| [illegible] | Gas |
| [illegible] | Dry |
| [illegible] | Dry |
| [illegible] | Gas |
| [illegible] & | Gas |
| [illegible] Mrs. J. A. | Gas |
| [illegible] | Gas |
| [illegible] | Gas |
| [illegible] | Gas |
| Monongalia | |
| [illegible] & | Gas |
| [illegible] Mrs. J. A. | Gas |
| [illegible] | Gas |
| [illegible] | Gas |
| [illegible] | Dry |
| [illegible] Phila Co. | Gas |
| [illegible] & Co. | Gas |
| [illegible] Mrs. [illegible] & | Gas |
| Preston County | |
| Meyer Carnegie Gas | 11 |
| [illegible] | Dry |

Hancock County—
Beam, Shady Glen O. & G. 1 ..... Gas
Williamson, Sutton Bros. 1 ..... Dry
Sistersville—
McIlroy, Bills, Eddy & Co. 1 ..... Dry
Ritchie County—
Moats, Hope Gas 1 ..... Gas
McGregor, Hays Oil 1 ..... Dry
Rutherford, C. L. Brown Oil 17 ..... Dry
Jackson, So. P. O. 1 ..... Dry
Darnold, I. O. & G. P. 4 ..... Gas
Wells, I. O. & G. P. 1 ..... Gas
Broadwater, Hope Gas 1 ..... Dry
Newbrough, Mid-West Oil 1 ..... Gas
McGinnis, Chalmers Oil 5 ..... Dry
Westfall, Hope Gas 1 ..... Gas
Wirt County—
Rathbone tract, Roberts Bros. 105 ..... Dry
Rathbone tract, Roberts Bros. 106 ..... Dry
Pleasants County—
Westbrook, Twelve-Acre Oil 1 ..... Dry
Hammett hrs., Ryan & Jack 16 ..... Dry
Pollard, So. P. O. 4 ..... Dry
Shively, L. C. White & Co. 1 ..... Gas
Cook, Tait Bros. & Co. 28 ..... Dry
Davis, Bishop & Co. 6 ..... Dry
Sunderman, Creek Oil 14 ..... Dry
Calhoun County—
Nichols, Jennings Bros. 2 ..... Dry
Penninger, G. L. Cabot 1 ..... Gas
Hickman, Hope Gas 1 ..... Gas
Roane County—
McCrady, U. F. G. 2 ..... Dry
Kanawha County—
Blue Creek tract, So. P. O. 57 ..... Gas

Dry ..... 26
Gas ..... 32

## SOUTHEASTERN OHIO.

Woodsfield—
Baker, Thompson & Co. 1 ..... Dry
Perry County—
King, Ohio Cities Gas 1 ..... Dry
Wilson, Wildwood Oil 1 ..... Dry
Lyons, O. F. S. 1 ..... Dry
Axline, J. T. Pyle & Co. 1 ..... Dry
Hocking County—
Woodard, Preston Oil 1 ..... Dry
H. V. P. Chartiers Oil 123 ..... Dry
Knox and Holmes—
Barnes, B. & H. Oil 1 ..... Dry
Fry, Logan O & G 1 ..... Dry
Muskingum County—
F. M. Swingle, J. L. Swingle & Co. 1 ..... Dry
Thompson, Penn Oil & Gas 7 ..... Dry
Macksburg—
McCall, Allshouse & Cisler 1 ..... Dry
Noble County—
Gill, J. O. McKee & Co. 2 ..... Dry
Miller, Dilley Bros. & Co. 3 ..... Dry
Hupp, Brady, Dixon & Co. 1 ..... Dry
Curtis, O. F. S. Co. 1 ..... Dry
Morgan County—
VanFossen, Penn O. & G. 39 ..... Dry
Athens County—
Finsterwall, G. H. Evans 1 ..... Dry
France, W. W. Rumfling 5 ..... Dry
Grovener, Geo. Washbaugh 1 ..... Dry
Marietta—
Noland, Pleasants County Bank 11 ..... Dry
Greene, Frank D. Kerr & Co. 5 ..... Dry
King, Unknown 1 ..... Dry
Cordry, W. H. Cordry 10 ..... Dry
Torner Oil, Chas. A. Peavey & Co. 60 ..... Dry
Johnson, Miller & Riley 1 ..... Dry
Wunderlich, German N. Bank 4 ..... Dry
Rardin, Kamerer & Co. 1 ..... Dry
McLaughlin, L. Stephens 1 ..... Dry
Wickens, Bell O. & G. 17 ..... Gas
Hull, H. C. Turner 1 ..... Dry
Harrison County—
Reppert, Cadiz parties 1 ..... Dry
City property, Home Co. 2 ..... Gas
Carroll County—
Boyd, Pop Corn Oil 3 ..... Dry
Brooks, Brooks Oil 1 ..... Dry
Long Bros., Beck & Rice 1 ..... Dry
Gotschall, Reynolds & Co. 1 ..... Dry
Kimmel, Goldberry & Co. 1 ..... Dry
Jewell, N. G. Co. of W. Va. 2 ..... Gas
Jefferson County—
Leatherberry, D. C. Burns & Co. 1 ..... Dry
Featner, Two States Oil 7 ..... Dry
Cunningham, Thompson & Co. 1 ..... Dry
Columbiana County—
Yaggi, Renner-Deible Oil 7 ..... Dry
Mangus, Pittsburgh parties 1 ..... Dry
Belmont County—
Ramsey, N. G. Co. of W. Va. 1 ..... Gas
Stonebrake, N. G. Co. of W. Va. 1 ..... Dry
Creamer, N. G. Co. of W. Va. 1 ..... Dry

Dry ..... 43
Gas ..... 4

## PENNSYLVANIA FIELDS.

### SUMMARY OF COMPLETED WORK.

| | Comp. | Prod. | Dry. | Gas. |
|---|---|---|---|---|
| Allegany | 19 | 31 | 0 | 3 |
| Bradford | 43 | 115 | 1 | 1 |
| Middle Field | 20 | 35 | 6 | 3 |
| Venango-Clarion | 66 | 120 | 4 | 2 |
| Butler-Armstrong | 21 | 27 | 6 | 1 |
| Southwest Pa. | 58 | 380 | 17 | 12 |
| West Virginia | 159 | 1,092 | 26 | 31 |
| S. E. Ohio | 121 | 939 | 43 | 4 |
| Total | 517 | 2,739 | 103 | 57 |

## CENTRAL OHIO.

### LICKING COUNTY.

Licking—C. W. Irwin, Columbus N. Gas 5 ..... Gas
J. Diltz, Columbus N. Gas 2 ..... Gas
R. A. Courson, Heisey Gas 1 ..... Dry
McKean—J. Wertz, Columbus N. Gas 1 ..... Gas
Washington—Ed. Crawford, Utica G., O. & Mining 1 Gas
Newark—Fulton, Columbus Nat. Gas 1 ..... Dry

Dry ..... 2
Gas ..... 4

### FAIRFIELD COUNTY.

Walnut—Taylor, Ohio Fuel Supply 1 ..... Gas

### ASHLAND COUNTY.

Green—Wallace, Ohio Fuel Supply 1 ..... Dry
W. T. Bittinger, Logan Gas & Fuel 1 ..... Gas
W. T. Bittinger, Logan Gas & Fuel 2 ..... Gas

[illegible] Maurer Logan Gas & Fuel 1 Gas
[illegible] Logan Gas & Fuel 2 Gas
[illegible] Cole Ohio Fuel Supply 1 Gas
[illegible] S. McFadden, Ohio Fuel Sup 1 Gas
[illegible] Galloway Ohio Fuel Supply 1 Dry
[illegible] McKinley Logan Gas & F 1 Gas
[illegible] McAdow Ohio Fuel Supply 1 Gas

[illegible] 2
[illegible] 8

### MEDINA COUNTY

[illegible] Gartner Logan Gas & Fuel 2 Gas
[illegible] Logan Gas & Fuel 1 Gas
[illegible] Stoldrich Ohio Fuel Sup 1 Gas
[illegible] Stevens Ohio Fuel Supply 1 Gas
[illegible] Warner Medina Gas & Supply 10 Dry
[illegible] Huff Ohio Fuel Supply 1 Gas
[illegible] Sievers Milton Freshwater 1 Gas
[illegible] Medina Gas & Fuel 1 Gas

[illegible] 1
[illegible] 3

### WAYNE COUNTY

[illegible] Saltzger Logan Gas & F 1 Gas
[illegible] Bernard Ohio Fuel Supply 1 Gas
[illegible] Garver Ohio Fuel Supply 1 Gas
[illegible] Woodell Ohio Fuel Supply 1 Gas
[illegible] Schilling Logan Gas & Fuel 1 Dry
[illegible] Saltzger Ohio Fuel Supply 1 Gas
[illegible] Whitaker Ohio Oil 2 Gas
[illegible] Whitaker Ohio Oil 1 Gas
[illegible] Armstrong Ohio Oil 2 Gas
[illegible] Armstrong Ohio Oil 1 Gas
[illegible] Armstrong Ohio Oil 4 Gas

[illegible] 1
[illegible] 10

### RICHLAND COUNTY

[illegible] Applegate Logan Gas & Fuel 2 Gas

### CUYAHOGA COUNTY

[illegible] Myers Logan Gas & Fuel 1 Gas
[illegible] East Ohio Gas 2 Gas
[illegible] & Huber 1 Gas
[illegible] Motheral Oil & Gas 1 Dry

[illegible] 1
[illegible] 1

### VINTON COUNTY

[illegible] Ohio Fuel Supply 1 Gas
[illegible] Ohio Fuel Supply 1 Gas
[illegible] Ohio Fuel Supply 1 Gas
[illegible] Ohio Fuel Supply 1 Gas
[illegible] Ohio Fuel Supply 1 Gas
[illegible] Ohio Fuel Supply 2 Gas
[illegible] Ohio Fuel Supply 1 Gas
[illegible] Oil & Gas 2 Gas
[illegible] Ohio Fuel Supply 1 Gas
[illegible] Ohio Fuel Supply 1 Dry
[illegible] Ohio Fuel Supply 1 Gas
[illegible] Ohio Fuel Supply 1 Gas

[illegible] 1

### HOCKING COUNTY

[illegible] Logan Gas & Fuel 1 Gas
[illegible] Ohio Fuel Supply 1 Gas

[illegible] 2

### COSHOCTON COUNTY

Newcastle [illegible] Logan Gas & Fuel 1 Dry

### HOLMES COUNTY

[illegible] Logan Gas & Fuel 1 Dry
[illegible] Logan Gas & Fuel 1 Gas

## CENTRAL OHIO

### SUMMARY OF COMPLETED WORK

| Field | Comp | Prod | Dry | Gas |
|---|---|---|---|---|
| Licking | 6 | 0 | 2 | 4 |
| Fairfield | 1 | 0 | 0 | 1 |
| Knox | 0 | 0 | 0 | 0 |
| Ashland | [illegible] | 0 | 2 | 8 |
| Medina | 8 | 0 | 1 | 7 |
| Logan | 0 | 0 | 0 | 0 |
| Wayne | [illegible] | [illegible] | 1 | [illegible] |
| Richland | | 0 | 0 | 1 |
| Cuyahoga | 4 | 0 | 1 | 3 |
| Vinton | 11 | 0 | 2 | 11 |
| Hocking | 2 | 0 | 0 | 2 |
| Coshocton | | 0 | 1 | 0 |
| Perry | 0 | 0 | 0 | 0 |
| Holmes | 1 | [illegible] | 1 | 1 |
| Jackson | 1 | 0 | 0 | 0 |
| Marion | | 10 | 0 | 0 |
| Total | [illegible] | [illegible] | 11 | [illegible] |

## LIMA FIELD

### WOOD COUNTY

[illegible] W. M. Fish Cleveland [illegible] Dry
[illegible] Dry

[illegible] 2

### HANCOCK COUNTY

[illegible] Petroleum [illegible] Carterville Theatre 1 Dry

### SANDUSKY COUNTY

[illegible] Gas & Heating [illegible] Heating & 1 Dry

### MERCER COUNTY

[illegible] New Idea Spreader [illegible] Gas

## INDIANA FIELD

### BLACKFORD COUNTY

[illegible] Dry

### JAY COUNTY

[illegible] Dry
[illegible] Dry
[illegible] Dry

[illegible] 4

### RANDOLPH COUNTY

[illegible] Dry

### GIBSON COUNTY

[illegible] 11
[illegible] 1

[illegible] 2
[illegible] Gas

PIKE COUNTY.

Washington—F. Carpenter, A. B. Bement 1 ..... Dry
Patoka—Wiggs, Tuller, Welch & Co. 6..... Dry

Dry ..... 2

SULLIVAN COUNTY.

Turman—S. P. Osborn, W. C. Kennedy Co. 1..... Dry

## KENTUCKY-TENNESSEE.

WAYNE COUNTY.

Cooper—Huffaker, Kendall Refg. 30 ..... Dry
M. Cooper, Heydrick & Co. 1..... Dry
Marsh Harmon, Rex Carpenter 2..... Dry
Steubenville—F. Baker, Wool Oil 1..... Dry

Dry ..... 4

LAWRENCE COUNTY.

Busseyville—Jesse Jordon, Ophir Oil 1..... Dry

ESTILL COUNTY.

Irvine—A. Wagers, Meldren & Keating 4..... Dry
Ambergoy Heirs, Ohio Oil 1..... Dry
Isaac Henry, Estill Oil 1 ..... Dry
Chas. Cox, Crown Oil 8..... Dry
John Puckett, W. S. Raydure 3..... Dry
Dan McCoy, Wood Oil 4..... Dry
Chas. Cox, Crown Oil 11..... Dry
Chas. Cox, Crown Oil 12..... Dry
F. J. Wagers, Carter Oil 6..... Dry
L. Young, Gaines, Marcum & Neely 3..... Dry
Williams, Maple Oil 20..... Dry
W. A. Alexander, Cumberland Prod. 14..... Dry

Dry ..... 12

POWELL COUNTY.

Ashley—Robert Boyd, Carter Oil 1..... Dry
S. Townsend, Root-Hupp Co. 1..... Dry
D. C. Hall, Cumberland Pet. 3..... Dry
T. A. Hall, Cumberland Pet. 2..... Dry
John Kinzer, Ohio Oil 1..... Dry
B. Campbell, Sayers-Hervey Oil & Gas 1..... Dry
Floyd Willis, Ohio Oil 1..... Dry
A. J. Adams Heirs, Beckett-Iseman 1..... Dry
Ledford, Beckett-Iseman Co. 1..... Dry
P. V. Drake, Van Oil ..... Dry
Jas. Oaks 3, Ohio Valley Oil 1..... Dry
Mores Heirs, J. C. Riley 1..... Dry

Dry ..... 12

ALLEN COUNTY.

Scottsville—Mose Fisher, Republic Oil 5..... Dry
Mose Fisher, Republic Oil 6..... Dry
Jos. Steen, Good Luck Oil 1..... Dry
Lucie Myers, Anderson & Co. 1..... Dry
W. E. Moore, Fisher & Son 2..... Dry
Miller, McArthur Prod. 5..... Dry
Miller, McArthur Prod. 6..... Dry
Miller, McArthur Prod. 7..... Dry
Carter, Barnett Oil & Gas 1..... Dry
M. B. Crow, White Plains Oil 9..... Dry
Johnson, Boyd & Co. 1..... Dry
Steen, Good Luck Oil 2..... Dry
Rube Spears, Anderson & Co. 1..... Dry

Dry ..... 13

BATH COUNTY.

Olympia—Richardson, Unknown 1 ..... Dry

METCALF COUNTY.

Edmonton—J. W. Kinnand, Metcalf Co. 1..... Dry
Hensley, Smith & Co. 1..... Dry

Dry ..... 2

LINCOLN COUNTY.

Waynesburg—Jim Dye, Wood Oil 1..... Gas
Joe Wieland, Fisher Oil 1..... Dry

BARREN COUNTY.

Glasgow—Strader Bros., Unknown 1..... Dry

SIMPSON COUNTY.

Franklin—Moore, Holeran & Co. 1..... Dry

GREEN COUNTY.

Whitewood—White, Morrison Dev. 1..... Gas

ROCKCASTLE COUNTY.

Broadhead—A. T. Furnish, Broadhead Oil & Gas 1.. Dry

KNOX COUNTY.

Barbourville—Dutton Calebs, Kentucky O. & Gas 1.. Gas
Hampton—McDonald & Co..... Dry

JACKSON COUNTY.

Drip Rock—Holly Cave, Fisher Oil 1..... Dry
Felty, Matthew-Sentz Oil 1..... Dry

Dry ..... 2

## ILLINOIS FIELD.

CLARK COUNTY.

Casey—S. McDaniels, German Nat. Bank 19..... Dry
Oscar Lingle, Paul Kuhn 6..... Dry

Dry ..... 2

CRAWFORD COUNTY.

Oblong—M. J. Sherrell, Ohio Oil 8..... Dry
J. H. Taylor, Ohio Oil 20..... Dry
Martin—J. H. Tohill, Mahutska Oil 4..... Dry
Honey Creek—John Kent, Ohio Oil 4..... Dry
Lamot—S. G. Swearinger, Phipps & Co. 2..... Dry

Dry ..... 5

LAWRENCE COUNTY.

Dennison—L. F. Gould, Ohio Oil 3..... Dry

WABASH COUNTY.

Wabash—M. Price, Jordon Bros. & Co. 1..... Dry
H. Price, Sian Oil & Gas 2..... Dry

Dry ..... 2

## MID-CONTINENT.

## KANSAS.

MONTGOMERY COUNTY.

15-33-14, Magher, Dayton Security 1..... Dry
14-34-14, Dobson, Dorthea Oil 10..... Dry
33-34-15, Samuels, Mahutska Oil 1..... Dry
5-35-15, Taylor, Kilgore Oil 8..... Gas
5-35-15, Wood, Byrone Oil 6..... Dry
8-35-15, Cecil, O. K. Oil 11..... Dry
6-31-16, Oversier, Margay Oil 1 ..... Dry
15-31-16, Gray, Hale Oil 1..... Gas
3-34-14, Fee, W. M. Bowersock 6..... Gas

Gas ..... 1
Dry ..... 6
Gas ..... 3
Gas production ..... 1,500,000

### BUTLER COUNTY

[illegible] and Vicinity

[illegible] Murray Empire Gas & Fuel 16 Dry
[illegible] Grimes Sinclair Oil & Gas 2 Dry
[illegible] Grimes Southwestern Pet 1 Dry
[illegible] Young Hudgens Oil & Gas 1 Dry
[illegible] Fudge Empire Gas & Fuel 1 Dry

[illegible] and Vicinity

[illegible] Sager Empire Gas & Fuel 1 Gas
[illegible] Marshall Patton & Davis 1 Dry

[illegible] 6
[illegible] 1
[illegible] Gas

### CHAUTAUQUA COUNTY

[illegible] Ferguson Gas Perry 1 Dry
[illegible] Carpenter et al Roth 1 Dry
[illegible] Gas
[illegible] Dry
[illegible] Shaw Prairie Oil & Gas 1 Dry
[illegible] Shaw Prairie Oil & Gas 10 Dry
[illegible] W Motor Empire Gas & Fuel Dry
[illegible] Lee Herman Dean 1 Dry

[illegible]
[illegible] Gas

### FRANKLIN COUNTY

[illegible] Barnett Wright Land 1 Dry
[illegible] Ola Kansas Oil 1 Dry

[illegible] 2

### WILSON COUNTY

[illegible] Marsh Montgomery Gas
[illegible] Gas

[illegible] 2
[illegible] Gas

### NEOSHO COUNTY

[illegible] Edward Mahan Gas
[illegible] Lee Larson Gas Pet 1 Gas

[illegible]

### MIAMI COUNTY

[illegible] & Campbell Gas
[illegible] Mahan Gas Dry

### WILDCATS

[illegible]
[illegible] Gas
[illegible]
[illegible] Gas
[illegible] Gas
[illegible] Gas
[illegible]
[illegible] Gas
[illegible] Dry
[illegible]
[illegible] Gas

[illegible] 2
[illegible]
[illegible] Gas

## OKLAHOMA

### WASHINGTON COUNTY

[illegible] & Co Gas 1 Dry

[illegible] Lee W T Knapp 8 Dry
[illegible] Whiteturkey National Oil 2 Dry

Dry 1

### BIRD CREEK OWASSO VERDIGRIS

[illegible] Walker Gas Prophet 1 Dry
[illegible] Muskrat Oil Co 2 Gas
[illegible] Lord Petroleum Oil 1 Gas
[illegible] Parris Carlson 2 Dry
[illegible] Ross Kirkburg et al 1 Dry
[illegible] Allen Stellmon et al 1 Dry

Dry 4
Gas 2
Gas per Location 1st Gusher

### CHEROKEE SHALLOW SAND

[illegible] Palmer Painter & Stager 2 Dry
[illegible] Rankin Merrill & Strother 2 Dry
[illegible] Lewis Northwestern Oil 1 Dry
[illegible] Lee Mershon et al 1 Dry
[illegible] Sanford Hammond 1 Dry
[illegible] Progressive Oil 1 Dry
[illegible] Coleman Amalgamated Oil 2 Dry
[illegible] Foreman Depp & Sitz 1 Dry

Dry 8

### OSAGE DISTRICT

[illegible] Sinclair Oil & Gas 1 Dry
[illegible] Total Oil 2 Dry
[illegible] Osage Nat Gas 1 Gas
[illegible] Skelton & Moore 1 Dry
[illegible] N A Franchot 1 Dry

Dry 6
Gas 1
Gas per Location 1 500 000

### CLEVELAND PAWNEE COUNTY MANNFORD

[illegible] Morgan Lee & Sam Oil 1 Dry
[illegible] Ace Carter 1 Dry
[illegible] Carter Oil & Gas 1 Dry
[illegible] Stanolind Oil & Gas 1 Gas
[illegible] Mars Prairie Oil & Gas 4 Gas
[illegible] Carter Prairie Oil & Gas 1 Dry

Dry 4
Gas 2
Gas per Location 4 000 000

### CUSHING SHAMROCK

[illegible] Carter Oil & Gas 1 Dry
[illegible] Mabee Magic Oil 1 Gas
[illegible] Mabee Magic Oil 1 Gas

[illegible] 1
[illegible] Gas
[illegible] 50 000 00

### TULSA GLENN POOL WILEY KELLYVILLE

[illegible] Dry
[illegible] Gas
[illegible] Dry
[illegible] Dry
[illegible] Dry
[illegible] Dry
[illegible] Gas
[illegible] Dry
[illegible] Dry
[illegible] Dry
[illegible] Dry
[illegible] Gas
[illegible] Dry
[illegible] Gas
[illegible] Gas
[illegible] Dry
[illegible] Gas
[illegible] Dry
[illegible] Gas
[illegible] Dry

23-17-13, Bruner, Livingston Oil Corp. 2..... Gas
31-17-13, Murray, York et al. 3..... Dry
28-19-12, Yargee, J. W. Starr 5..... Dry
18-17-12, Barnes, Prairie O. & G. 6..... Dry
7-19-14, Morgan, Day et al 1..... Dry
10-19-14, Kellop, Chase et al. 1..... Dry
23-18-13, Chisholm, Franchot et al. 1..... Dry
19-18-14, Copper, Bearman et al. 1..... Gas
4-17-13, Wilson, Roth et al. 3..... Dry
27-17-13, Bruner. Edgar Oil 1..... Dry
33-17-13, Allen, Wilcox et al. 3..... Dry
33-17-14, Daniels, Danciger et al. 1..... Dry
29-17-14, Bailey, Galbreath et al 2..... Dry
29-17-14, Dubois, Livingston Oil Corp. 2..... Dry
34-17-14, Parnosky, Sinclair O. & G. 9..... Dry
34-17-14, Tecumseh, Duquesne Oil 9..... Dry
24-16-14, Jackson, Galbreath et al. 1..... Gas
24-16-14, Lowery, Galbreath et al. 1..... Dry
25-16-14, Harrison, S. S. S. Oil 1..... Dry

Dry ..... 28
Gas ..... 6
Gas production ..... 22,500,000

**OKMULGEE-MORRIS.**

9-11-14, Grayson, Smith & Swan 1..... Gas
36-13-12, Atkins, Kimberly et al. 1..... Dry
18-12-12, Tiger, Eastern Oil 5 ..... Gas
2-13-12, Skelton, Barbara Oil 5 ..... Dry
19-12-12, Canard, E. E. Shock 1..... Gas
22-12-12, Turman, Travis et al. 9..... Dry
9-11-14, Jameson, M. G. Clark 1..... Dry
3-13-13, Drew, Long et al. 1..... Dry

Dry ..... 5
Gas ..... 3
Gas production ..... 25,000,000

**HAMILTON SWITCH.**

10-15-11, Cooper, Bradstreet et al. 1..... Dry
24-14-12, Smith. Bassett et al. 1..... Dry
12-14-11, Hul, Savoy Oil 1 ..... Gas
27-14-11, Cobb, Kimbley et al. 1..... Dry
12-14-12, Lowe, Calvin et al. 4..... Dry
22-14-11, Thompson, James Lyons 1..... Dry

Dry ..... 5
Gas ..... 1
Gas production ..... 8,000,000

**BALD HILL-BOOCK SAND.**

34-15-14, Grayson, Okmulgee Pro. & R. 24..... Gas
15-14-13, Bunton, E. R. Black 1..... Dry
20-14-14, Sadler, Laurel Oil 2..... Dry
2-15-14, Dur, F. Gillespie 1 ..... Dry
13-15-14, Harjo, Moore et al. 2..... Dry
32-15-14, Jefferson, McGinley et al. 3..... Gas
19-14-13, Berryhill, Detrick et al. 1..... Gas
12-14-14, Adams, Meyers et al. 14..... Dry
14-15-14, Scott, Mosgrive Oil 13 ..... Dry
36-15-14, Roberts, Swift et al. 1..... Dry
25-14-13, Wisner, Kingwood Oil 1..... Gas
28-14-13, Manuel, Waite Phillips 1 ..... Dry
17-14-14, Morton, Swift et al. 3..... Dry
32-14-14, Ashley, Graham et al. 2..... Dry
22-15-13, Anderson, Black et al. 2..... Dry
13-14-13, Kernel, Wigton et al. 2..... Dry
23-14-13, Chully, Okmulgee Prod. & Ref. 1..... Dry
3-14-14, McKinney, Carter Oil 4 ..... Dry

Dry ..... 14
Gas ..... 4
Gas production ..... 27,000,000

**WAGONER, MUSKOGEE AND RODGERS COUNTY.**

21-16-15, Drew, Corey & Anders 3..... Dry
28-16-15, Roe, Fay Drg. 5 ..... Dry
4-14-15, Jefferson, Shaffer & Greis 1..... Dry
6-14-15, Connor, Hazlett & Price 4..... Dry
7-14-18, Collins, Bottom Rock Oil 2..... Dry
32-19-16, Thomas, F. Misner 4 ..... Dry
32-18-15, Wiley, Edgar Oil 11..... Dry
12-18-16, Lucy, Harris et al. 1..... Dry
29-15-16, Howard, Billingslea et al. 2..... Gas
30-15-16, Franklin, Goble et al. 1..... Dry
12-14-15, Peters, Humble-Margary Oil 3..... Dry
8-14-15, Anderson, Kanotex Oil 1 ..... Dry
30-15-17, Scott, Whitesides et al. 1..... Gas
7-14-17, Jackson, Greis et al. 1..... Dry
22-18-15, McIntosh, Showalter et al. 1..... Dry
29-18-15, McHenry, Laurel Oil 7..... Dry
9-16-15, Richards, Geaser & Co. 1..... Dry
6-14-15, Connor, Okmulgee Prod. & Ref. 2..... Dry
6-14-15, Connor, Okmulgee Prod. & Ref. 3..... Dry
33-14-16, Carson, Arkaarden Oil 1..... Dry
35-15-17, Jacobs, Lampton et al. 1..... Dry
35-15-15, Harrison, Caney River Gas 1..... Dry
26-15-15, Colbert, Knox Oil 3..... Gas
6-14-15, Connors, Hazlett et al. 5..... Dry
1-13-16, Hamilton, Kistler & Co. 1..... Dry

Dry ..... 22
Gas ..... 3
Gas production ..... 8,500,000

**KAY COUNTY.**

32-20-1E., Averv, Jones & Buell..... Dry
6-28-1E., Wolfe, Blackwell O. & G. 3..... Gas

Gas production ..... 5,000,000

**HEALDTON POOL CARTER COUNTY.**

33- 3- 3, Bonner, Fetz Oil 1 ..... Dry
18- 4- 2, Pugh, Carter Oil 3 ..... Dry
15- 4- 3, Carnes, Gates Oil 16..... Dry
19- 3- 2, Gladney, Romainia Oil 1 ..... Dry
20- 4- 3, Newton, Watchorn et al. 1 ..... Dry
30- 4- 3, Coffee, Watchorn et al. 1..... Dry
13- 4- 3, Woodworth, Producers Oil 14..... Dry

Dry ..... 7

## ARKANSAS.

Boone County—
8-18N.-21W., Rinehart et al. 1..... Dry
Independence County—
13-13N.- 5W., Sulphur Rock Dev. 1..... Dry
Franklin County—
34-10N.-27W., Banfield & Price 1..... Dry
Crawford County—
19-9N.-30W., Oklahoma Prod. 6 ..... Gas

Dry ..... 3
Gas ..... 1
Gas production ..... 8,000,000

## KANSAS.

**SUMMARY OF COMPLETED WORK.**

| | Comp. | Prod. | Dry. | Gas. |
|---|---|---|---|---|
| Montgomery | 40 | 427 | 6 | 3 |
| Butler | 88 | 24,225 | 6 | 1 |
| Chautauqua | 26 | 293 | 7 | 1 |
| Wilson | 14 | 153 | 0 | 2 |
| Neosho | 32 | 785 | 1 | 1 |
| Franklin | 7 | 118 | 2 | 0 |
| Allen | 16 | 205 | 0 | 0 |

| | | | | |
|---|---|---|---|---|
| [illegible] | 9 | 345 | 3 | 0 |
| [illegible] | 16 | 145 | 3 | 4 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| Total | 238 | 36,050 | 36 | 12 |

## OKLAHOMA.

### SUMMARY OF COMPLETED WORK

| | Comp | Prod | Dry | Gas |
|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | 2 | 2 |
| [illegible] | [illegible] | [illegible] | 8 | 0 |
| [illegible] | [illegible] | 4,507 | 4 | 1 |
| [illegible] | 24 | 3,280 | 4 | 2 |
| [illegible] Shamrock | 28 | 1,280 | 1 | 1 |
| [illegible] | 211 | 8,134 | 24 | 17 |
| [illegible] | 4 | 460 | 1 | 1 |
| [illegible] | 68 | 6,451 | 7 | 0 |
| [illegible] | 9 | 415 | 0 | 0 |
| [illegible] | [illegible] | [illegible] | 106 | 36 |

## MID-CONTINENT

### SUMMARY OF COMPLETED WORK

| | Comp | Prod | Dry | Gas |
|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | 238 | [illegible] | 36 | 12 |
| [illegible] | 4 | 0 | 1 | 1 |
| Total | [illegible] | [illegible] | 111 | 49 |

## TEXAS PANHANDLE

### WICHITA AND WILBARGER COUNTIES

[illegible]

[illegible] Shelton Magnolia Petroleum [illegible] Dry
[illegible] M [illegible] et al [illegible] Dry
[illegible] Ry Texas Oil [illegible] Dry
[illegible] Tennessee Producers Oil [illegible] Dry
[illegible] Federal Oil Dry

[illegible]

### CULBERTSON DISTRICT

[illegible]

[illegible] Dry

### BURKBURNETT

[illegible] Plains Oil & Gas [illegible] Dry
[illegible] Plains Oil & Gas [illegible] Dry
[illegible] Plains Oil & Gas [illegible] Dry
[illegible] Magnolia Petroleum [illegible] Dry
[illegible] Mann et al [illegible] Dry
[illegible] [illegible] Oil [illegible] Dry
[illegible] Texhoma [illegible] Dry
[illegible] Mann et al [illegible] Dry
[illegible] [illegible] & Stanley [illegible] Dry
[illegible] Brown et al [illegible] Dry

[illegible]

### STRAWN

[illegible] Texas & Pa [illegible] Dry
[illegible] Texas & Pa [illegible] et al [illegible] Gas
[illegible] Texas & Pa [illegible] et al [illegible] Gas
[illegible] Texas & Pa [illegible] et al [illegible] Dry

[illegible]

[illegible]

### WILDCATS

Archer County—
Musgrove J W Stone [illegible] Dry
Emmert, Stone Oil [illegible] Dry
Wilson Little Wichita Oil & Gas [illegible] Dry
Wilson Panther Oil & [illegible] Dry
Helm, Langford Staley & Chenault [illegible] Dry
Stephens County—
Smith, Texas & Pacific Coal [illegible] Dry
Palo Pinto County
J F Hess Empire Gas & Fuel [illegible] Gas
Chesnut Empire Gas & Fuel [illegible] Gas
Robinson, Texas & Pacific Coal [illegible] Dry
Coleman County, Switzer Hart & Sun [illegible] Dry
Stephens County
Sloan, Texas & Pacific Coal [illegible] Dry

[illegible]

Dry holes 9
Gas 3

## NORTH LOUISIANA

[illegible]

[illegible] Hunsucker La Oil Ref Corp [illegible] Dry
[illegible] Jelly Clarke & Greer [illegible] Gas
[illegible] Browning V I York [illegible] Dry
Bossier
[illegible] Franklin Realty Co, Atlas Oil [illegible] Dry
[illegible] V W Rowe Standard Oil [illegible] Gas
Miscellaneous
[illegible] Luther Caddo Nat [illegible] A [illegible] Gas
[illegible] Sewell Gaines Dallas Oil [illegible] Dry
[illegible] Goddens V J Yoke [illegible] & [illegible] N Dry
[illegible] Wardlaw Ark La Oil [illegible] Dry
[illegible] Welsh Godfrey [illegible] Calvert [illegible] Dry
[illegible] Wineman Atlas Oil [illegible] Dry
[illegible] Gardner Atlas Oil [illegible] Dry
Sabine [illegible] Rowe [illegible] Curran et al [illegible] Dry

[illegible]

Dry 10
Gas wells 3

## NORTH LOUISIANA

### SUMMARY OF COMPLETED OPERATIONS

| | Comp | Prod | Dry | Gas |
|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | 3 | 1 |
| [illegible] | 4 | [illegible] | [illegible] | [illegible] |
| Red River | [illegible] | [illegible] | 0 | 0 |
| Bossier | 2 | 0 | 1 | 1 |
| Miscellaneous | 8 | [illegible] | [illegible] | [illegible] |
| Total | [illegible] | [illegible] | [illegible] | 3 |

## GULF COAST REGION

### GOOSE CREEK

[illegible] [illegible] Gas
[illegible] [illegible] Gas
[illegible] [illegible] Gas
[illegible] [illegible] Gas
[illegible] [illegible] [illegible]
[illegible] [illegible] Gas
[illegible] [illegible] [illegible]
[illegible] [illegible] Gas

[illegible] Gas
[illegible] [illegible]

SARATOGA.

| | |
|---|---|
| Fee, Rio Bravo Oil 265 | Gas |

SOUTH LOUISIANA.

| | |
|---|---|
| Terrebonne Parish, Mansfield O. & G. 2 | Gas |
| Gas Production | 50,000,000 |

## GULF COAST.

SUMMARY OF WELLS COMPLETED.

| Dist. | Comp. | Prod. | Dry. | Gas. |
|---|---|---|---|---|
| Batson | 6 | 735 | 0 | 0 |
| Edgerly | 2 | 40 | 1 | 0 |
| Goose Creek | 63 | 42,025 | 19 | 7 |
| Humble | 31 | 5,705 | 15 | 0 |
| Jennings | 6 | 155 | 1 | 0 |
| Markham | 3 | 185 | 0 | 0 |
| Spindletop | 5 | 150 | 2 | 0 |
| Saratoga | 5 | 220 | 0 | 1 |
| Sour Lake | 16 | 1,383 | 4 | 0 |
| Vinton | 3 | 250 | 1 | 0 |
| Miscell. | 30 | 5 | 28 | 1 |
| Total | 170 | 50.853 | 71 | 9 |

## TEXAS-LOUISIANA.

SUMMARY OF WELLS COMPLETED.

| | Comp. | Prod. | Dry. | Gas. |
|---|---|---|---|---|
| Texas Panhandle | 121 | 5,903 | 25 | 5 |
| North Louisiana | 40 | 6,270 | 10 | 3 |
| Gulf Coast | 170 | 50,853 | 71 | 9 |
| Total | 331 | 63,026 | 106 | 17 |

## STANDARD OIL SUBSIDIARIES.

BY JO. P. CAPPEAU SONS.

**July 1st to 20th, Inclusive.**

| | | Open | High | Low | Last |
|---|---|---|---|---|---|
| £1 | Anglo-American | 19 | 19½ | 18½ | 18½ |
| 100 | Atlantic Ref. | 900 | 930 | 900 | 930 |
| 100 | Borne-Scrymser | 400 | 400 | 400 | 400 |
| 50 | Buckeye Pipe | 100 | 100 | 100 | 100 |
| 100 | Chesebrough | 380 | 390 | 380 | 380 |
| 100 | Colonial | 50 | 50 | 50 | 50 |
| 100 | Continental | 490 | 490 | 490 | 490 |
| 50 | Crescent | 35 | 35 | 35 | 35 |
| 100 | Cumberland | 155 | 155 | 155 | 155 |
| 100 | Eureka | 205 | 208 | 200 | 200 |
| 100 | Galena Com. | 146 | 146 | 146 | 146 |
| 100 | Galena Pref. | 135 | 137 | 135 | 137 |
| 100 | Illinois Pipe | 208 | 210 | 207 | 210 |
| 50 | Indiana Pipe | 95 | 98 | 95 | 96 |
| 12½ | National Transit | 14 | 14 | 14 | 14 |
| 100 | New York Transit | 185 | 185 | 185 | 185 |
| 100 | Northern Pipe | 95 | 98 | 95 | 95 |
| 25 | Ohio Oil | 338 | 362 | 335 | 362 |
| 100 | Prairie Oil | 495 | 500 | 495 | 495 |
| 100 | Prairie Pipe Line | 270 | 270 | 267 | 270 |
| 100 | Solar Refining | 320 | 320 | 320 | 320 |
| 100 | Southern Pipe | 190 | 190 | 190 | 190 |
| 100 | South Penn. Oil | 280 | 290 | 280 | 290 |
| 100 | South West Penn. Pipe.. | 105 | 105 | 105 | 105 |
| 100 | S. O. of California | 257 | 270 | 256 | 256 |
| 100 | S. O. of Indiana | 730 | 745 | 730 | 745 |
| 100 | S. O. of Kansas | 475 | 475 | 460 | 460 |
| 100 | S. O. of Kentucky | 325 | 345 | 325 | 345 |
| 100 | S. O. of Nebraska | 480 | 500 | 480 | 500 |
| 100 | S. O. of New Jersey | 585 | 587 | 577 | 580 |
| 100 | S. O. of New York | 280 | 282 | 278 | 280 |
| 100 | S. O. of Ohio | 420 | 420 | 420 | 420 |
| 100 | Swan & Finch | 90 | 100 | 90 | 100 |
| 100 | Union Tank | 90 | 96 | 90 | 96 |
| 100 | Vacuum Oil | 345 | 355 | 345 | 355 |
| 10 | Washington Oil | 25 | 30 | 25 | 30 |
| 25 | Penn-Mex. | 48 | 48 | 48 | 48 |
| 5 | International Petroleum. | 13 | 13¼ | 12⅞ | 13⅛ |

**Independent Oil Companies.**

| | | | | | |
|---|---|---|---|---|---|
| 100 | Cities Service Corp. | 282 | 282 | 274 | 275 |
| 25 | Pierce Oil | 12 | 12 | 11½ | 11⅛ |
| 50 | Midwest Refining | 139 | 160 | 139 | 159 |
| 25 | Tropical Oil | 8 | 8⅛ | 7⅛ | 8⅛ |
| 5 | Cosden Refining | 12⅜ | 13 | 12⅜ | 12⅜ |
| 5 | Sapulpa Refining | 9⅞ | 10⅝ | 9¾ | 10½ |
| 5 | Cosden Oil & Gas Com... | 12⅜ | 13⅜ | 12⅛ | 12⅜ |
| 5 | Cosden Oil & Gas Pfd. .. | 4⅝ | 4⅞ | 4½ | 4⅝ |
| 5 | Okla. Producing & Ref... | 9¾ | 9¾ | 9 | 9 |
| 5 | Atlantic Petroleum | 5½ | 7 | 5½ | 6⅜ |
| 10 | Merritt Oil | 25 | 36 | 24¾ | 36 |
| 1 | Midwest Oil | 78 | 79 | 77 | 77 |
| 5 | Osage-Hominy Oil | 7¾ | 8⅞ | 7½ | 8¾ |

## FINANCIAL REPORT.

**July 1st to 20th, Inclusive.**

BY JO. P. CAPPEAU SONS.

| Stocks | Open | High | Low | Last |
|---|---|---|---|---|
| Caney River Gas | 48½ | 48½ | 48 | 48 |
| Columbia G. & E. | .. | .. | .. | 40 |
| Fayette Gas | 121 | 120 | 120 | 120 |
| Mfg. L. & H. | 62¾ | 63½ | 61⅝ | 63½ |
| Ohio Fuel Supply | 46⅞ | 46⅞ | 46½ | 46⅝ |
| Ohio Fuel Oil | 18 | 18½ | 17¼ | 17⅞ |
| Oklahoma Gas | 100 | 100 | 100 | 100 |
| Osage & Oklahoma | .. | .. | .. | 130¾ |
| Pgh. Oil & Gas | 5½ | 6 | 5½ | 5¾ |
| Pure Oil Com. | 23⅞ | 24½ | 24 | 24⅛ |
| Cent. Kentucky Gas | .. | .. | .. | 22 |
| Lone Star Gas | 96 | 96 | 95 | 96 |
| Union Gas | 172 | 172 | 172 | 172 |

## NATURAL GAS SUPPLY MEN'S DIRECTORS MEET.

AT the meeting of the Directors of the Association of Natural Gas Supply Men, held in the William Penn Hotel, Pittsburgh, on Tuesday evening, T. C. Clifford, who has acted as Treasurer of the Association since its organization, was presented by the Directors with a handsome hall clock, as a mark of appreciation for the excellent manner in which he has handled the finances.

Twenty-three additional manufacturers have joined the Association within the past year, and the report shows that, after all expense of the Buffalo Convention had been paid, the surplus had been increased about $500.00. Treasurer Clifford reported that he had invested $2,500.00 of the surplus in Liberty Bonds.

# AROUND THE BELT

**New Wells, New Pipe Lines, New Contracts, Additions and Extensions. A Fund of Valuable News Gathered for the Journal Through Many Sources.**

## TRADE PERSONALS

It will be noted that the names appearing under the personal headings are those of men interested in the development of the natural gas field. Those wishing to learn of matters pertaining to men interested in the field of artificial gas should refer to THE GAS INDUSTRY magazine published at the Pearl Street, Buffalo, N. Y., which devotes its columns exclusively to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being conducted exclusively in the respective field and each therefore rendering more efficient service to the industry it covers. **Publisher's Note**

### B. J. CRAHAN TAKES UP NEW DUTIES.

J. Crahan who for the past eight years has been superintendent of the Joplin Gas Company has been promoted to the management of the Port Huron Gas & Electric Company Port Huron Michigan, and will be succeeded at Joplin by John W. McMillan, of Portsmouth, Ohio. This change became effective August 15th.

These properties mentioned are owned and operated by the National Gas, Electric Light and Power Company, with offices at Witherspoon Bldg., Philadelphia, Penna. Its officers are Van Horn Ely, President, V. N. Gurney, Vice President, H. L. Crowley, General Manager. Mr. Ely is also president of the American Railways Company which own and operate railway properties in several cities throughout the country in addition to their gas and electric properties.

[illegible] who is Treasurer of the Association of Natural Gas Supply Men, was presented with a very handsome bell clock at a meeting of the directors of the Association held in the William Penn Hotel, Pittsburgh, [illegible].

[illegible] R. W., who was formerly connected with the South Shore Natural Gas & Fuel Company, Buffalo, N. Y., is now with the Trumbull Public Service Company, Warren, Ohio.

[illegible] E. [illegible] at the annual meeting of the West Virginia Natural Gas Association was elected Vice President of the Association.

[illegible] H. [illegible] of the Associated Gas Engineers of New York is at present engaged in investigation work in Wyoming.

[illegible] E. P. [illegible] has been elected President of the West Virginia Natural Gas Association which held its annual meeting at Parkersburg recently.

[illegible] H. P. [illegible] in Mexico in the interests of the Mexican Society of Engineers.

Mr. [illegible] W. L. who was formerly on the staff of the Public Service system at Jacksonville, Ill., is now Manager of the Brunswick Light & Power Company, Brunswick, Ohio. [illegible] recently added to the Belleair properties as part of the Oklahoma Gas & Electric Company.

Peter W. B. [illegible] is President of the new Okmulgee Producers & Manufacturers Gas Company, Okmulgee, Okla.

Reuben H. R. [illegible] is the new Manager of the Logan Natural Gas & Fuel Company at Logan, Ohio, succeeding H. F. Finley.

## ITEMS OF FINANCE

It will be noted that the companies mentioned under this head are all of them companies drilling and distributing natural gas. Those wishing to obtain a knowledge concerning the important matters in the artificial gas field are referred to THE GAS INDUSTRY magazine, published at the Pearl Street, Buffalo, N. Y., which devotes its columns exclusively to artificial gas matters. THE GAS INDUSTRY is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being specifically named for its respective field and each therefore rendering more efficient service to the industry it covers. **Publisher's Note**

### NEW YORK—Buffalo

The Iroquois Natural Gas Company is asking permission of the Upstate Public Service Commission to issue $[illegible] in common capital stock.

### OKLAHOMA—Muskogee

An offer is being made to preferred stockholders of Muskogee Gas & Electric Company to exchange their shares part for part for preferred stock of the Oklahoma Gas & Electric Company. The Oklahoma Company now owns a majority of both preferred and common stocks outstanding of the Muskogee Company and the offer is made to complete the financial structure of the united Oklahoma Gas & Electric Company which now operates electric and gas stock owned properties in important Oklahoma cities with a population [illegible] including Muskogee. Under the Muskogee Light & Power Company's charter [illegible] Muskogee Light & Power Company's preferred shares are [illegible] the same dividend basis [illegible] and the bonds are the same there are [illegible] interest. The [illegible] Muskogee preferred certificates [illegible] to be sent to R. [illegible] Treasurer of the Oklahoma Gas & Electric Company, 308 South La Salle Street, Chicago, [illegible] certificates [illegible] exchanged equal certificates of the [illegible] preferred stock of the Oklahoma Gas & Electric Company.

### Oklahoma City

It is reported that the [illegible] Oklahoma Gas & Electric Company [illegible] the three months ended June [illegible]

# NEW FRANCHISES

It will be noted that the franchises referred to below are those specifically granted natural gas companies. Those desiring to learn of artificial gas franchises granted should refer to THE GAS INDUSTRY magazine, published at 60 Pearl Street, Buffalo, N. Y., which devotes its columns entirely to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being exclusively issued for its respective field, and each rendering 100% efficiency in the industry it covers.—Publisher's Note.

**CALIFORNIA—Porterville.**

One thousand citizens of Porterville have signed a petition addressed to the State Railroad Commission asking that the Central California Gas Company be granted a franchise to operate a natural gas line to this city from the Midway gas fields.

**Santa Rosa**

The Pacific Service Company of Los Angeles has obtained a franchise under which the company will construct a pipe line in Healdsburg, passing through Geyserville and Cloverdale and Ukiah, a distance of 60 miles. The company is applying for franchises in Healdsburg and Cloverdale.

**INDIANA—Cambridge City.**

The franchise of the Cambridge City Natural Gas plant and equipment have been taken over by A. B. Ayres of Fortville, Ind., and F. M. Millikan of Indianapolis.

**TEXAS—Dallas.**

A new franchise is being sought in this city by the Dallas Gas Company, although the present franchise still has some years to run.

# INCORPORATED

It will be noted that we here specifically point to natural gas companies that have been incorporated. Those desiring to learn of artificial gas companies that have received incorporation papers should refer to THE GAS INDUSTRY magazine, published at 60 Pearl Street, Buffalo, N. Y., which devotes its columns entirely to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being specifically issued for its respective field, thus each rendering 100% efficiency in the industry it covers.—Publisher's Note.

**COLORADO—Denver**

The Empire Gas & Fuel Company has been incorporated with a capital stock of $500,000, for the purpose of developing oil and gas leases in the states of Wyoming, Utah, Idaho, Arkansas and Washington.

**DELAWARE—Dover**

The States Oil Corporation has been incorporated under the laws of this state with a capital stock of $1,000,000, for the purpose of acquiring and developing oil and natural gas lands. Among the incorporators are W. F. O'Keefe, G. G. Steigler, and E. E. Wright, of Wilmington, Del.

**MARYLAND—Baltimore**

A charter has been applied for by Cosden & Company, capital stock $32,000,000. Among those named as incorporators are: Enos S. Stockbridge, Wilhelm Lentz, Roland H. Brady, all of Baltimore.

**NEW YORK—Batavia**

The Penn York Gas & Oil Company has been incorporated here with a capital stock of $1,000,000. Directors for the first year are: John A. Beck, J. H. Friday, W. P. Hansell, J. P. Mulvihill, George J. Schmitt, and S. Zock, of Pittsburgh, Pa.; H. H. Lobaugh, of Pavilion, and J. S. Purdy, of Le Roy.

**Buffalo**

The Diament Oil & Gas Corporation has been formed here with a capital stock of $75,000. Among those interested are: R. E. Diament, J. H. Clark, M. E. Butler, all of Buffalo.

**WEST VIRGINIA—Parkersburg**

The Continental Oil & Gas Company, capital stock $150,000, has been incorporated here. Among those interested are: C. T. Hitesgew and W. M. Smith.

# PER CUBIC FOOT—RATES

It will be noted that the gas rates referred to below are those referring specifically to natural gas rates. Those desiring to learn of artificial gas rates should refer to THE GAS INDUSTRY, published at 60 Pearl Street, Buffalo, N. Y., which devotes its columns entirely to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being exclusively issued for its respective field, and each rendering 100% efficiency in the industry it covers.—Publisher's Note.

**ILLINOIS—Belleville**

The Illinois Utilities Commission has been asked to take up the matter of the rate charged local consumers of the St. Clair County Gas & Electric Company. The present rate is 85 cents per thousand.

**MISSOURI—Kansas City**

By a decision of the Federal Courts announced on August 1st, higher rates for natural gas are granted in the vicinity of Kansas City. Under the new rate schedule natural gas is to cost 60 cents per M feet north of Ottawa, Kansas, which district includes Kansas City. The territory south of Ottawa will pay 50 cents per M cubic feet for gas.

Henry L. Doherty & Company controls the natural gas interests in that neighborhood and according to the new rate revisions, that company is to receive 57½% of the gross income.

**KENTUCKY—Lexington**

The Central Kentucky Natural Gas Company, it is reported, will raise its rates to 40 cents per thousand after September 1st, and will also establish a minimum charge of 50 cents per month.

**OHIO—Berea**

The Doherty interests recently acquired the properties of the Berea Pipe Line Company. It is said that the rates will be raised in all of the towns supplied by this line.

**Columbus**

The Columbus Natural Gas & Fuel Company has raised its rate for industrial uses from 11 cents to [illegible] per thousand

**OKLAHOMA—Pawhuska**

[illegible] order of the Corporation Commission fixing rates for gas in the city of Pawhuska, for service by the Pawhuska Oil & Gas Company has been upheld by the Supreme Court. It was contended that the Commission did not have jurisdiction, as the company was operating under a franchise granted by the city. The court held that the laws enacted by recent legislatures granting powers to the Commission were valid, that they being the last in effect governed

**NEW YORK—East Olean**

[illegible] Gas Company, which supplies East Olean, Allegheny, Limestone and other places in this section, has increased its rate from 30 cents per thousand cubic feet to 40 cents net per thousand

**PENNSYLVANIA Meadville**

[illegible] gas company has notified the school board that special rates will be granted school houses in winter. The rate heretofore charged was 25 cents per thousand. The new rate is 37 cents

**ONTARIO—Brantford**

During the past year the Dominion Natural Gas Company has increased its gas rates in all the Canadian cities in which it operates, with the exception of Ingersoll and Woodstock. The increases have ranged from 5 cents per thousand feet. Similar advances will probably be made in the three towns which must be supplied with purified gas on account of the high sulphur content. The increases in the three towns will be necessitated by the change in the arrangements of the gas companies

# GENERAL

[illegible] Publisher's Note

**CALIFORNIA—Angiola**

[illegible] Natural Gas Company's well on the [illegible] ranch [illegible] this district is much [illegible] was present when [illegible] the [illegible]

**Huntington Beach**

[illegible] gasoline plants, fitted with [illegible] are to be installed here by [illegible] has obtained the contract for a [illegible]

**INDIANA Kokomo**

The manufacture and distribution of artificial gas are to be discontinued by the Kokomo Gas Company, a supply of natural gas having been arranged for which will take care of all of the company's customers

**Shelbyville**

The Citizens Natural Gas Co. & Water Company, it is said, will build an artificial gas plant and use the manufactured gas in combination with the natural gas in extreme weather

**KANSAS Cherryvale**

The Edgar Zinc Company reports a 15-million-foot gasser in a location five miles southeast of here

**Salem Hall**

The Mozart Oil & Gas Company, located in this district, has been placed in the hands of a receiver. H. H. Talbott, acting for the Natural Safety Company, is in charge of the company's affairs. The company's property is valued at $[illegible]

**Wellsville**

With the falling off of the gas supply, the Wright Producing Company is making application for permission to take up its gas lines in the field located south of this city. Formerly the company supplied about 150 farms with gas from this field

**KENTUCKY Louisville**

Gas and electric service will be supplied by the Louisville Gas & Electric Company to the army cantonment which will be established near here. The rates to be charged will be the same as in the city

**Williamsburg**

A new natural gas distributing system, it is said, is planned for the city

**Winchester**

The Blue Gas & Coal Company is drilling its second well on this property

**MISSOURI Kansas City**

A report from Kansas City says the Kansas City Gas Company is taking under consideration the matter of erecting an artificial gas plant here

**NEW YORK Greenwood**

A large gasser has been struck on the Montesano property near here. The well has a very high pressure and the gas will be piped to Andover, where it will be used in the fires of the Empire Gas & Fuel Company, which supplies [illegible] with gas

**OHIO—Coshocton**

A new [illegible] extent as [illegible] gasser [illegible]

**Cuyahoga County**

[illegible] the Cleveland Gas & Fuel Company [illegible] gasser [illegible] the [illegible] Company [illegible]

[illegible] the Cleveland Gas & Fuel Company [illegible] gasser [illegible]

location on the southwest corner of the W. H. Lawrence farm, Lot 90, and for a test on the northeast corner of the M. E. Wolf farm, Lot 78.

**Hamilton**

Extensions and improvements in the municipal natural gas system are planned, and these will cost in the neighborhood of $40,000 to execute. A bond issue in this sum has been arranged.

**Lorain County**

The Logan Gas & Fuel Company is building a gasoline extraction plant near here which will cost in the neighborhood of $500,000.

**Mansfield**

The gasoline station at the Mansfield Compressor plant has been completed and is working to good advantage, yielding about 600 to 1,000 gallons a day. A contract was made not long ago with the Standard Oil Company to dispose of the product.

**Medina County**

In Harrisville Township the Logan Gas & Fuel Company drilled a good gas well on the southwest corner of the E. and M. Frary farm, Lot 158.

In Westfield Township the Ohio Fuel Supply Company drilled a fine gas well on the J. E. Barnard farm, Lot 7. In Lafayette Township, the same company drilled a big gas well on the southeast corner of the J. A. Clark farm, Section 12.

The Medina Gas & Fuel Company drilled a good gas well on the northeast corner of the John A. Kemp farm, Section 9, and is drilling a test on the southeast corner of the Adam Culler farm, Section 35.

**Mentor**

J. M. Poulton, of this city, recently drilled in a 2,000,000 foot gas well in Mentor. Poulton was drilling for salt water, which was to be used in the manufacture of chemicals by the company putting down the well, when he struck a heavy pocket of gas at 1,700 feet. The gas is the same quality as that which is coming from the Saybrook field. Another well is to be drilled in the same vicinity at once.

**Nevada**

According to report, the Doherty Organization recently purchased the distributing plants of the Venture Gas Company in Nevada, Morrell and Wyandotte, O.

**Salem**

A four unit compressor station is being built near Salem by the Medina Gas & Fuel Company.

**Shreve**

The Buckeye State Gas & Fuel Company has been active in the development of leases near Shreve. Several producing oil and gas wells have been drilled

**WEST VIRGINIA—Belmont County**

In the Meade district the Natural Gas Company of West Virginia has completed tests on the John Clark, A. O. M. Ramsey and T. J. McKelvey farms. All are light gassers in the Berea grit.

**Braxton County**

In Salt Lick district, the Clayton Oil & Gas Company completed a test on the Jeffre heirs' farm, getting a light gasser in the Big Injun sand. In the same district, the Philadelphia Company's test on the W. L. McVauley farm is a gasser in the same formation.

In Elk Fork, Birch district, the Philadelphia Company completed No. 3 on the C. R. Bourne farm. It is a gasser in the same formation.

**Calhoun County**

On Five Mile Creek, Sheridan district, the Hope Natural Gas Company has a light salt sand gasser at its test on the W. R. Bush farm.

**Doddridge County**

On Beverlin Fork, McClellan district, the Carnegie Natural Gas Company's No. 3 on the Bates heirs' farm has been drilled through all sands. A light gas pressure was developed in the Big Injun, but nothing in the lower sands.

**ONTARIO—Glenwood**

Thirty miles northwest of the Glenwood field, near Lake St. Clair, a good gas well was brought in recently by the Union Natural Gas Company. It is said to be the first well in Canada to be drilled in Trenton sand. The well registers 7,500,000 cubic feet at a depth of 3,150 feet. The Doherty Company has been active in taking leases in the vicinity of the new well.

**Kent County**

The Union Natural Gas Company is building five rigs on its leases on the Fleming farm, where the company recently developed a 5,500,000 cubic foot gasser.

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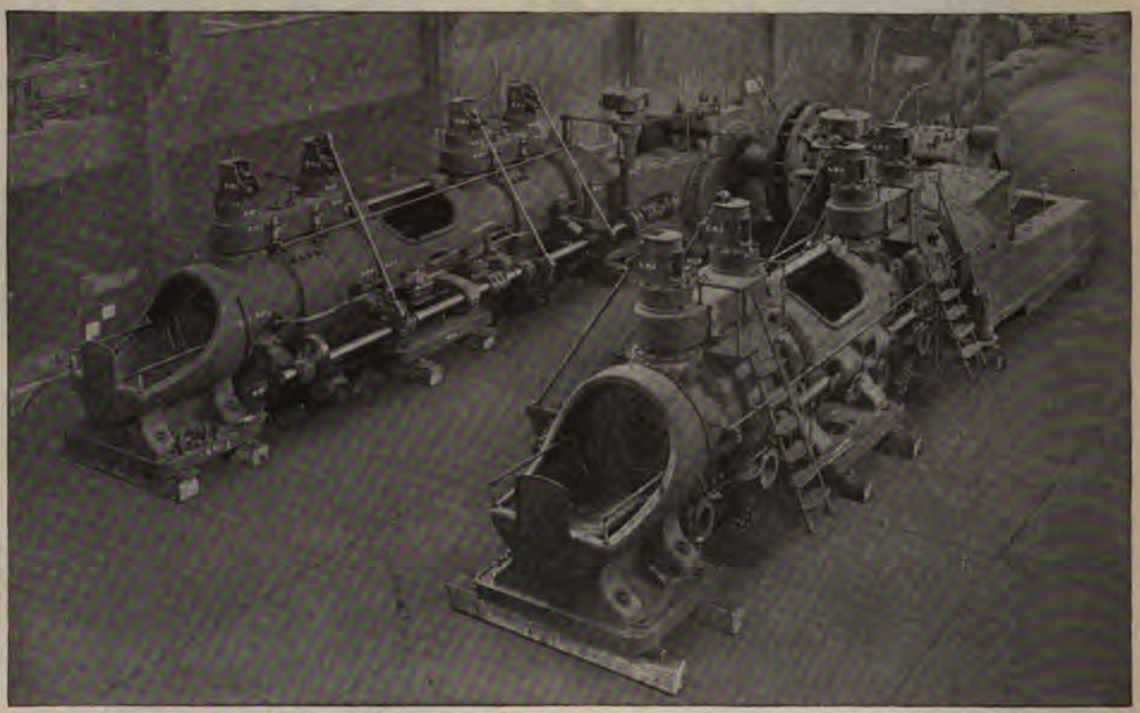

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THIS NUMBER 9

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ANNUAL CONVENTION NATURAL GAS ASSOCIATION OF AMERICA, AND ANNUAL EXHIBITION ASSOCIATION OF NATURAL GAS SUPPLY MEN—May 14, 15, 16, 1918, at Louisville, Ky.

## ORAL FLAG SALUTE

I pledge allegiance to my flag and to the Republic for which it stands
One nation indivisible, with liberty and justice for all

## STARS AND STRIPES

is the official name of the National Flag of the United States. In the Army our National Flag is called the Standard, also the Colors. When borne with another flag the regimental colors the two flags are called a "Stand of Colors." In the Navy our National Flag is known as the U. S. Ensign.

## DISPLAY

The flag should not be hoisted before sunrise nor allowed to remain up after sunset.

When the Flag is flown at half staff as a sign of mourning it should be hoisted to full staff at the conclusion of the funeral.

In placing the Flag at half staff it should first be hoisted to the top of the staff and then lowered to position, dropping it from the top of the staff the distance of the width of the Flag and preliminary to lowering from half staff, it should first be raised to the top.

On shipboard the National Flag is the flag to be raised first and lowered last.

Where several flags are displayed on poles with the National Flag the Stars and Stripes should be hoisted first and on the tallest or foremost or responsive staff. Where two flags are displayed one our National Flag it should be placed on the right. It is extra on the right of a building face in the same direction as the building. No flag should ever be flown from the same staff as the U. S. Flag except in the Navy, then only during Divine Service when the Church Pennant may be displayed above the National Flag and above Ensign.

When in parade the National Flag is carried with any other flag it should have the place of honor at the right. If a number of flags are carried the National Flag should either precede the others or be carried in the center above the others or be carried in the center above the others on a higher staff.

## SALUTE

When flags are used in unveiling a monument, tablet or statue they should not fall to the ground but be carried aloft forming a distinctive feature of the ceremony.

When the National Flag is used as a banner the union should be at the right as one face the Flag. When used as an altar covering the union is at the right as one faces the altar and nothing should ever be placed upon the Flag except the Holy Bible.

The Flag should never be flown reversed except in distress at sea.

When the National Colors are passing in parade or in review the spectators should if walking halt and if sitting arise and stand at "attention" and uncover.

The National Salute is one gun for every State.

The International Salute is under the Law of Nations twenty-one guns.

On shore the Flag should not be dipped by way of salute or compliment.

Entered according to Act of Congress in the year [illegible] by [illegible] in the office of the Librarian of Congress at Washington, D. C.

# FROM THE EDITORIAL MAIL BAG

## DEVELOPING GAS AND OIL PROPERTIES IN UNITED STATES AND CANADA.

THE American-Canadian Oil & Gas Company was incorporated in May of this year. It is a Delaware corporation, and is capitalized at $1,000,000.

Report says that the company controls 1,000 acres of oil territory in the Caddo or Terry Lake, La., district, adjoining the Gulf Relning Company's property in that section.

It is stated that the company will promptly start operations, and intends prospecting for oil in the lake. The same institution is said to control 1,100 acres of oil and gas leases in Taylor, Adair, Metcalf and Allen counties in Kentucky, where there are four producing oil wells. Then, in addition, that the company has about 10,000 acres of natural gas and oil leases in Haldimand, Welland and Lincoln Counties, Ontario, Canada. Here also three wells are producing excellently. These, however, are gas wells, while the others mentioned are oil.

The American-Canadian Company is negotiating for a franchise to supply Smithville, Ont., and are said to have a well now drilling to supply Wellandport. This supply will, we understand, be sold at 35 cents per thousand cubic feet.

## SUBSTITUTE FOR GASOLINE.

A process appears described in foreign patent records for a substitute that the inventor and certain others are inclined to believe will reduce very materially the demand for gasoline and thus possibly relieve a situation that the world is facing, which in this wartime might prove very embarrassing, namely, much less gasoline produced than required.

The patentee is William Augustus Hall. The address given is 9 Grace Burch Street, London. Mr. Hall is a chemist, and his invention is described as relating to a process for producing from kerosene, or paraffine oil, a motor fuel of such nature as to be suitable for use in internal combustion engines of high speed.

The process contemplates boiling up to about 220 degrees C., the fraction of kerosene remaining after the gasoline or petrol substantially has been "stripped." After the boiling process this fraction is passed between very tiny meshes under high pressure from one thousand to three thousand pounds per square inch, or more in some instances, in the presence of a gas containing a hydrocarbon, or hydrogen gas, the temperature, however, not above the lowest point of boiling the liquid, that might be reckoned from 100 to 120 degrees C.

A combination is accomplished by this process resulting in a mixture of the liquid hydrocarbon and the gas, by which the liquid hydrocarbon passes through a certain amount of hydro generation which produces a notable lowering of the point of "flash" of the liquid hydrocarbon, and a noticeable change in the odor.

Regarding the apparatus, there is employed a certain form of homogeniser familiar to those who are acquainted with the process of homogenising milk. The system is a series of disks of metal through-between these the liquid is sent under pressure in the presence of the gas. The discs are preferably of nickel provided with slight intricacies that might be described as scratches, very fine, just sufficient to allow the liquid to pass, while the gas may be either hydrogen or coal-gas containing hydrogen, or as it is stated, hydrocarbon gas, such as oil gas or acetylene.

The change of odor mentioned is accomplished by a removing of the kerosene or paraffine odor, and the product has that sudden flash value of gasoline which makes gasoline appropriate to use in internal combustion high-speed engines.

In describing the results it is stated that a certain volume of gas is taken up by a like quantity of liquid.

If the process described is a success, and if the product is what is claimed for it, and if the product may be produced 'at a figure," etc., there may be found in the invention something of real value both as a feature in economics and as a money-maker for those making use of the method.

## BIG GASOLINE RECOVERY PROJECT.

THE president of the Hope Engineering and Supply Co. Mr. Hildebrand, together with several associates, proposes a big project for the recovering of gasoline from casing-head gas.

These gentlemen have secured contracts covering this feature in the instances of 18 wells located in sections 33 and 34 of Township 19, in Creek County, Oklahoma, near the town of Oilton in the Cushing field.

A stock company with only a reasonable amount of shares for such a proposition as this is forming and bids fair to be a great money-maker for those who may be fortunate enough to get under cover.

Tests indicate two gallons of weathered gasoline per thousand feet of gas treated. This would render in the neighborhood of 2,500 gallons of gasoline per day, with an increasing output as additional wells are drilled.

## MARKETING PETROLEUM IN THE UNITED STATES

THE increase and decrease in number of barrels of petroleum in 1918 as compared with 1917 will be found in the following figures which are compiled from statistics supplied by the Department of the Interior, Washington, D. C.

| State and District | Per Cent of Increase or Decrease |
|---|---|
| Alaska | |
| California | |
| Colorado | |
| Illinois | |
| Indiana | |
| Kansas | |
| Kentucky | |
| Louisiana | |
| Northern | |
| Caddo | |
| De Soto | |
| Red River | |
| Sabine | |
| Total Northern | |
| Coastal | |
| Anse la Butte | |
| Edgerly | |
| Jennings | |
| Vinton | |
| Welsh | |
| Total Coastal | |
| Total Louisiana | |
| Michigan | |
| Montana | |
| Nebraska | |
| New York | |
| Ohio | |
| Northeastern | |
| Other | |
| Oklahoma | |
| Pennsylvania | |
| Tennessee | |
| Texas | |
| Northern | |
| Archer | |
| Archer County | |
| Mexia | |
| Petrolia | |
| Powell | |
| Thrall | |
| Wichita County | |
| Other | |
| Total Northern | |
| Coastal | |
| Batson | |
| Beaton | |
| Goose Creek | |
| Higgins | |
| Matagorda County | |
| Orange County | |
| Saratoga | |
| Sour Lake | |
| Spindletop | |
| Other | |
| Total Coastal | |
| Total Texas | |
| West Virginia | |
| Wyoming | |
| Other | |
| Total | |
| Summary | |
| Appalachian | |
| Lima-Indiana | |
| Illinois | |
| Mid-Continent | |
| Gulf | |
| California | |
| Rocky Mountain | |
| Other | |
| Total | |

## NATURAL GAS ASSOCIATION CO-OPERATING AT WASHINGTON

THE following is the text of a circular issued by the Natural Gas Association of America. Its contents should be known to all men in the field. Therefore the complete text is here printed:

In accordance with the action taken at the Convention of the Natural Gas Association in Buffalo on May 15th, a Committee of five was appointed to represent the Natural Gas Association in rendering all possible assistance to the Committee on National Defense and its Sub-committees. This committee consists of Colonel J. Bradley Aiton, Hon. W. Cranston Lewis, Mr. McDowell, John G. Pew, Joseph H. Geiger, President of the Natural Gas Association.

This committee was referred to the Sub-committee on Supplies of the Committee on National Defense.

The questions of Production of Natural Gas, and of Gasoline, they will report to Mr. A. C. Bedford, Chairman of the Committee on Petroleum.

The questions of the Distribution of Natural Gas they will report to Mr. John W. Lieb, Chairman of the Committee on Gas and Electric Service.

At a meeting of this Committee held in Pittsburgh Mr. Geiger was appointed Chairman. Mr. John G. Pew, Jr. was appointed Director of Work as Secretary of the Committee.

The Committee believes it advisable that the experts attached to the Committee of the Association be allowed the necessary time to [illegible] the questions referred to them, and that the Association endeavor to furnish the Committee on National Defense the greatest amount of the gasoline supply of the country.

It is requested that all members of the Natural Gas Association [illegible] with this statement and use every possible effort to give the facts and figures desired the greatest possible publicity. Any information which we can furnish the Committee on National Defense will be of great benefit and our hearty co-operation [illegible]

# *Efficiency On Reduced Pressure*

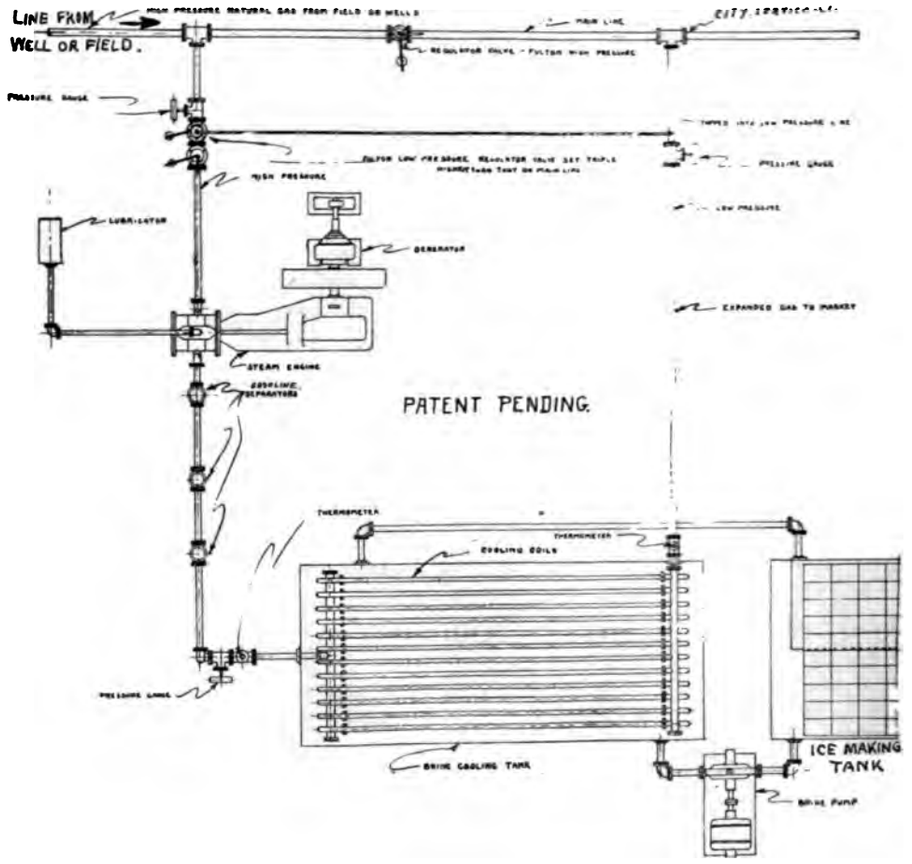
***Combining Pressure Reduction, Gasoline Extraction, Electric Generating, Ice Manufacture and Refrigerating Results Without Consuming Fuel.***

BY AUGUSTE JEAN PARIS, JR.

MUCH has been both said and done as regards "efficiency" in the operation of Gas Compressing Stations. But how about "efficiency" in the operation of Gas Reducing Stations? Efficiency at the reducing station as well as efficiency at the compressor station should be the purpose and such may be brought about. That is my point.

The pressure usually carried on one of these main transportation pipe lines ranges from 50 pounds to 300 pounds to the square inch; from this the reducing station valves reduce to low pressure, and maintain it at a predetermined low pressure, usually between 6 and 8 ounces to the square inch.

There has been great waste of available resources at these stations, and it is my purpose to bring this waste, and what may be accomplished to utilize this




As is known to your readers, gas reducing stations located near the distributing end of natural gas main transportation pipe lines consist of reducing valves of such type as the "Fulton Gas Regulator," the sole function being the reduction of high pressure, maintained in the main pipe, to a low pressure such as that maintained, on the low pressure distributing or city service line.

natural power—resource to the attention of those interested in the natural gas industry.

This is an efficiency problem pure and simple. Efficiency at the reducing station which also may be made to increase the efficiency of the compressor station while supplying at the same time several products of value, such as power, gasoline and ice.

The reducing station I suggest, is one to take the

place of present design, and consists of engines, similar to steam engines, wherein gas under pressure would be used instead of steam.

Every engineer knows that gas, under pressure, will drive a "steam" engine just as well as steam; it being but a matter of expansion. The greater the expansion the greater the efficiency.

In this plan the expansion engine acts as a reducer, and reduces the pressure on the main gas transportation pipe line to a predetermined low pressure to be maintained on the city service line. There may be one or more of these engines. In fact, it would not be good practice to depend wholly upon one unit.

The several units should be of a size equal to one-half of the minimum quantity of gas required per minute at any time of the day or night, excepting in cases where such quantity is too small to produce power, in which event the regulators on main line would automatically handle the situation.

The quantity of gas permitted to pass from the high pressure mains to the low pressure city service lines is absolutely controlled by using the regulation type of reducing valve, such as the "Fulton," in the pipeline leading the gas to the steam engine, with a small controlling pipe attached to the exhaust of the engine; the engine exhaust being the low or city service line. In this manner the "Fulton" regulator would, it may be seen, perform the same duty as in all present designed reducing stations, excepting that the gas in the method I point out, would pass through the expansion cylinder, *prior to its entrance to the city service lines.*

The high pressure gas in this system is made to do work on the piston, or other moving part of a reciprocating or turban expansion cylinder of the engine, thereby producing power as pointed out, through the reduction of the pressure from the high pressure of the main gas transportation pipe line to the low pressure of the city service pipe line.

The utilization of this lost power represents a conservation of natural and artificial resources, which up to this writing have been wasted, and for instance this power can be used for a variety of purposes, generating electricity, which, in turn, may be delivered back to the compression station and there used to drive part of the compressors supplying possibly 40% of the power required in such station.

This plan obviously increases the efficiency feature of the gas compression station by at least this same 40%.

Of course this engine-produced power could in certain instances be used near its point of production, for various purposes, such as local lighting, and power in the city, where the reducing station is located. This being a matter to be determined by local conditions, I consider that about 40% of the energy or power stored in high pressure gas pipe transportation lines is now wasted, yet may be conserved and utilized. Most of this energy and power is a natural resource, as commercial natural gas is usually delivered by nature under high rock pressure, pressure used to carry the gas through the main transportation pipe lines, a pressure that if supplied by artificial means, would require millions of horse-power.

In many instances artificial means are used, for supplying the high pressure, especially where the natural pressure has been reduced by constant drainage of the gas from the wells, and it can be figured that here there may be a saving accomplished of from 50 to 100 horse-power for each 1,000,000 cubic feet of gas delivered into low pressure lines, from high pressure lines.

I am informed that West Virginia alone has over 2,000,000,000 cubic feet of high pressure gas being sold daily, and many times that quantity bottled up in wells, which is being conserved. This power could be doubled by simply preheating the gas prior to expansion.

It is a well-known fact that when natural gas is used expansively, like steam, in a steam engine, it not only reduces the pressure from high to low, in the power generating process, but also that the temperature of the gas, is lowered, whereby refrigeration may be produced.

It is possible to produce a temperature of 100° below zero F. or lower. Therefore, under these conditions, the pressure reducing engine may become a refrigerating machine. The exhaust or low side, of the expansion cylinder, delivers gas into the city service not only at any predetermined pressure, but at a very low temperature.

Located in the exhaust line, leading to the city service line, I suggest placing separating devices, the function of which would be the separation of any condensible vapors, such as gasoline, etc., under temperatures, such as those produced, in this operation, thus all gasoline, etc., will drop out of the gas:—absolutely all of it; for there can be no other means as efficient, in this respect, thus supplying, as supplemental to the main object of this process, a gasoline plant to recover such of this material of great commercial value as may remain in the gas after earlier extraction at extraction plant, or where recovery may not have been earlier attempted.

The gas, leaving the gasoline station, having lost none of its refrigerating effectiveness, can be used for ice making, by passing the cold gas through brine (just as in an ice plant), the brine in turn refrigerating the water, and producing ice; the gas then being delivered through the city service lines to the consumer for heating and lighting.

My point has been to produce power, gasoline and ice, by machinery consuming no fuel, increasing thus both the efficiency at the compressor station, and at the reducing station—efficiency, as it were, both coming and going; a dual conservation of natural resource.

Power, gasoline and ice are produced by this plan right at their market, in a city's suburbs, at no additional cost. It is simply utilizing the power inherent in the gas itself, saving waste-energy, and making it do work.

The entire station works like a by-pass, around a present style reducing station, is not disturbed, but left ready to perform its work as of old, with the added efficiency, of new, and scientific methods.

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Although all of the steps outlined are well known to those skilled in the art, their use collectively is claimed to be new. The invention is by A. J. Paris, Jr., who has various patents pending, and who supplies the drawing from which our illustration is made.—Editor's note.

# Wrought Iron Pipe

## FOR USE IN THE GAS FIELDS

By JAMES ASTON, Metallurgist, A. M. Byers Co., Pittsburgh, Pa.

*Paper Presented at the Annual Meeting of the Natural Gas Association of America, Buffalo, N. Y., May 15 to 17, 1917. Discussion Appended.*

THE recovery of natural gas and distribution of all high pressure gas is so dependent upon pipe that a discussion would be valuable, dealing with the characteristics and adaptability of certain available products. This is particularly true since in the several places in which pipe is employed, there is variation in the nature of the service requirements, and a certain qualty or characteristic which may be essential or desirable in one class of service may be entirely subordinated where other requirements are predominant.

Welded pipe is of greatest importance by far. The details of manufacture of this product are so well known that it would appear unnecessary to deal with this phase of the subject at the present time, since operating methods in forming and welding pipe are essentially common to both wrought iron and steel.

Gas men are primarily concerned with the suitability of the products for their conditions of service, and to this end are especially interested in the characteristics and properties of the material from which the pipe is made, the methods of its manufacture, and the details of processes by which the base material itself is obtained.

Two classes of material are of importance in the manufacture of welded pipe for natural gas service—steel and wrought iron. Both are the products of the refining of a more impure pig or cast iron. The fundamental chemical principles by which this purification is accomplished are the same in both cases, but details of operation and equipment differ in the two processes, so that steel is markedly different from wrought iron in both chemical and physical characteristics. The essential features are as follows:

STEEL. (a) *Bessemer.* The Bessemer process effects a rapid purification of a large charge of molten pig iron (15 tons in 15 minutes) by blowing air under high pressure through the bath of the metal. Of the impurities eliminated, carbon passes off as gas, while the other ingredients unite to form a fluid slag. The finished charge is poured from the furnace in a molten condition into molds, which form an ingot that is rolled into the skelp required for pipe manufacture. And because both steel and slag are molten, the latter is entirely separated by flotation, and none appears in the final product.

Drawbacks of the Bessemer process are (1) lack of control and consequent irregularities of product, due to character of equipment and rapidity of operation; (2) failure to effect any elimination of sulphur and phosphorus; (3) manganese must be added to the finished charge to counteract otherwise detrimental effects of the process; (4) segregation, that is, irregular distribution and concentration into localized zones during solidification, of the comparatively large quantities of impurities which are present due to non-elimination or addition; (5) entire elimination of the slag.

It is well recognized in engineering practice that Bessemer steel is the least reliable of all steels, and that the situation is growing worse, rather than better, with steady deterioration in the quality of ore and other raw materials of manufacture. For years, open hearth steel has been demanded for structural shapes, boiler plate, and the highest grades of steel; and of late years Bessemer steel rails are being steadily superseded by the open hearth product. Bessemer steel is the material entering into the manufacture of the bulk of merchant pipe and oil and gas country tubular goods.

(b) *Open Hearth.* The Open Hearth process refines large heats (50 to 100 tons) in a period of 8 to 12 hours. The character of equipment and process admits of control during operations, and a higher degree of refining may be accomplished than in Bessemer working. However, many of the drawbacks of the Bessemer process are present, since the fluid condition of the finished charge results in elimination of all slag; also manganese additions are made to the heat, and there is the same opportunity for segregation.

WROUGHT IRON. Good wrought iron is made by refining pig iron of proper grade in a puddling furnace. A small charge (560 lbs.) is first melted down, and then refined by suitable additions of iron oxide in the form of ore or roll scale. Complete and uniform refining is ensured by hand rubbing or stirring of the heat. The total time of a heat is 1¾ to 2 hours. As in steel making, carbon is eliminated as a gas, while the other constituents which are removed unite to form a slag of glassy character. As contrasted with steel making, however, the furnace temperature in puddling is so low that the iron is finished in a pasty, non-fluid condition, and in consequence is removed from the furnace as a spongy ball, throughout which there is uniformly disseminated a considerable portion of the slag. Part of the slag is expelled by squeezing the ball of iron; but just as it is impossible to expel all of the water from a sponge by pressure alone, so we cannot eliminate all of the slag from the puddle ball by squeezing, and there remains about 1½ per cent. (by weight) of the slag mechanically mixed with the highly refined iron.

The puddle balls are rolled into bars (muck bars) which, in turn, are sheared to short lengths, built up into

s, and after heating to welding temperature, are rolled
o finished skelp or plate The repiling and rolling of
mack bar ensures uniformity in the skelp because of
educating the even slight differences which it is possible
ave in the individual bars, also we realize the benefits
additional work put upon the metal, and accomplish a
r distribution of the slag through this additional re
tion of sectional area during rolling

Well made wrought iron has the following charac
stics

A high purity of base metal

Uniformity in chemical and physical character of the base metal

Absence of segregation because of which there is a virtual absence of those impurities which segregate. In the final stages of refining are carried out upon a non-fluid metal, which segregation can result only by concentration in a liquid during solidification

No addition of manganese or other elements are made to the refined metal

There is a thorough and uniform distribution of slag throughout the metal This is mechanically incorporated in the form of a multitude of minute threads or ribbons,

Typical chemical analyses and physical properties are as follows

| | Bessemer Pipe Steel | Open Hearth Pipe Steel | Highest Purity Open Hearth Material Obtainable | Genuine Wrought Iron | |
|---|---|---|---|---|---|
| | | | | Base Metal | Slag |
| Carbon | 0.11 | 0.07 | 0.03 | 0.03 | |
| Silicon | 0.06 | 0.03 | 0.01 | 0.01 | 0.14 |
| Sulphur | 0.07 | 0.04 | 0.02 | 0.01 | |
| Phosphorus | 0.11 | 0.01 | 0.01 | 0.03 | 0.13 |
| Manganese | 0.37 | 0.15 | 0.01 | 0.01 | 0.03 |

The slag in wrought iron gives it a characteristic fibrous structure on fracture or by etching The latter is illustrated in Fig 1

The microstructure of wrought iron in transverse and longitudinal directions is shown in Figs 2 and 3

The strength and ductility of wrought iron are about 10 to 15 per cent less in the transverse direction, due to the nature of the slag incorporation

FIG. WROUGHT IRON BAR ETCHED TO SHOW SLAG FIBROUS STRUCTURE

which may be likened to a series of fine meshed screens with the meshes no wider than 1 mm to 1 mm in each width and the thickness of the skelp In other words there are from one half million to one million of these filaments per square inch of section of the metal

steel and wrought iron differ chemically and physically steel carries appreciable manganese, and in general is pure as to base metal as well purified wrought

This difference is especially pronounced in comparing ought iron and Bessemer steel the most important tals entering into pipe manufacture In addition and primary importance the steel making process results product within which there is incorporated that slag ch is so important a physical characteristic of weld ge wrought iron, and has such an important bearing on those properties which fit it for specialized service n order to show the high purity of the base metal of ought iron, analysis of ingot iron is cited This is ena open hearth material of highest commercial purity does not enter into the manufacture of merchant e

t is well to bear in mind in any estimation of chemical losure of wrought iron that it is a composite materia sisting of two physically distinct constituents slag l iron and that the usual chemical analyses refer in ing only the total quantities of the elements found hout regard to their position in iron or slag

| | Pipe Steel | Wrought Iron |
|---|---|---|
| Tensile Strength | 55,000 lb per sq in | 48,000 |
| Elastic Limit | 30,000 lb per sq in | 25,000 |
| Elongation | 30% | 12% |

The lesser strength and ductility of wrought iron in comparison with steel is sometimes counterbalanced by the inherent laminated structure being a disadvantage in steel However under conditions of high stress that exceed the strength of wrought iron the latter will suffer steadily increasing deformation due to the presence of stresses in excess of the elastic limit of the material, while steel under the same conditions of load may reach a point where the greater ductility of the steel will relieve the weaker material and give a high factor of safety under strenuous conditions Such conditions are prevalent in the use of pipe for gas service

The manufacture of wrought iron by the puddling process is of necessity more costly than steel making operations Does the product have sufficient merit to warrant continuance of the practice? Wrought iron pipe has four cardinal features which distinguish its organization and the steel product

1 Purity of slag The service of steel depends upon effectiveness of union of the two pieces of metal forming the edges of the weld to become welded with each other which is quite generally the weakest point and does not square out of the way The addition of welding steel uses to act as a flux but may produce a brittle weld

fluxes are not used by the blacksmith in welding wrought iron. It is self-fluxing because of the slag content. This explains why the weld in wrought iron pipe is more efficient than that in steel. Crushing tests recently made at the University of Pittsburgh showed only eight failures in the weld section in 136 pieces of lapweld wrought iron pipe of various sizes and weights. In 128 instances, therefore, the weld was stronger than the body metal. With the increasing use of acetylene welders, the advantages of the high welding quality of wrought iron, became particularly emphasized.

(2) *Threading*—The superior threading qualities of good wrought iron is a matter of note and is due to the fibrous character of the material, which causes the chip to break or crumble, reducing and preventing the chip space from clogging. A clean, minutely accurate thread occurs. A crack in a pane of glass may be arrested by boring a hole in its path to obstruct its progress. The slag in wrought iron performs a similar function by arresting the development of fissures, which would continue in steel without obstruction.

Expressed in another way, the comparison between steel and wrought iron is analogous to a solid bar as contrasted with a stranded cable. Fracture in the solid bar may continue under repeated stresses until complete failure occurs; whereas, the cable may suffer rupture of a strand without materially affecting the cable as a whole. The strands of the cable are independent units. Wrought iron consists of a multitude of independent iron fibres by reason of the associated slag filaments.

Brake rods, brake levers, equalizers, hangers, air lines, and many other parts of locomotives and cars upon which

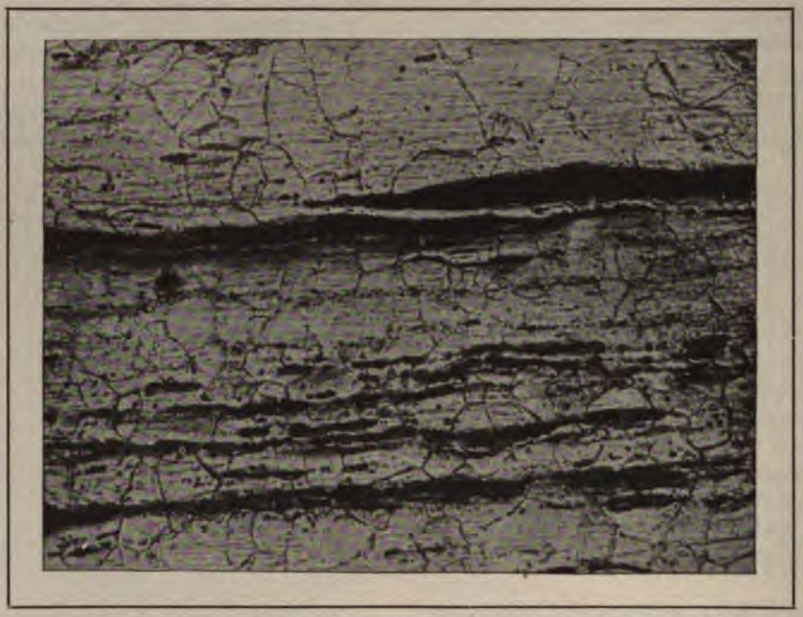


FIG. 2—MICROPHOTOGRAPH OF LONGITUDINAL SECTION OF WROUGHT IRON. LIGHT AREAS ARE IRON; DARK AREAS ARE SLAG.

results, which is essential to a permanently strong, leak-proof joint. The same considerations probably account for the lesser tendency to galling of threads encountered when using wrought iron pipe. The advantages of wrought iron pipe in this respect are so well known as to need no comment, and are especially important in high pressure gas lines.

(3) *Resistance to Vibration*—Figures for tensile strength, elastic limit and elongation are no criterion of endurance under vibratory stresses or repeated shocks. It is well established that steel stressed to only a fractional part of its ultimate tensile strength will fail if subjected to sufficient repetitions of the stress. The failure is said to be due to "crystallization" or "fatigue."

The fibrous nature of wrought iron enables it to withstand these shocks and vibrations very much better than steel does, in spite of the slightly higher initial strength of the latter. Steel resembles glass in its characteristics, and any minute fracture develops with vibration, expansion, shocks and other stresses, until complete rupture

safety of life and limb is vitally dependent, are specified of wrought iron according to standard practice upon the best railroads of the country; and wrought iron staybolts for locomotive boilers are required because they will best withstand the repeated stresses due to expansion and contraction. And this, in spite of the fact that no manufacturing difficulty prevents making steel for these purposes of vastly greater tensile strength than is possible in soft steel for pipe manufacture.

(4) *Resistance to Corrosion*—It is sufficient to state that the electrolytic theory is now generally accepted. According to this theory, all corrosion proceeds by electrolytic action caused by small electrically conducting impurities within the metal itself, or related causes.

It is well recognized that purity of the material, particularly as regards absence of sulphur and manganese, is one important factor in retarding corrosion and pitting. Why, therefore, should not Bessemer steel, most impure in this respect of all commercial steels, be particularly

e to attack? And why should not wrought iron, re, be relatively more immune?

sometimes confronted with the argument that ties cause corrosion, why does not the large f slag in wrought iron cause it to corrode even ckly than steel? The explanation is that slag, lassy substance, is a poor conductor of electric nd itself practically non-corrodible.

rity is only one factor in the solution of the problem and not the solution itself. For it is blished that physical conditions, such as strains tal, and particularly the rust itself, play a most role in accelerating corrosion. Such being the only possible to retard the progress of the obstructions from within the metal. Steel, no w pure, does not offer this resistance. Wrought the other hand, presents a myriad of slag fila- a barrier to the progress of corrosion and pit- same as the graphite flakes in cast iron.

very satisfactory under conditions where steel drill pipe caused much trouble because of crystallization and accompanying fracture.

First cost should not be the sole criterion in the selection of pipe. Unit cost of recovery and distribution is the vital consideration to the gas company. Relative length of service, therefore, assumes an importance greater than that of the initial cost. Well made wrought iron pipe of necessity costs more than steel pipe; it behooves the operator to carefully consider whether or not the qualifications which wrought iron possesses will ensure sufficiently extended service to warrant the extra initial outlay.

## THE DISCUSSION.

Mr. F. N. Speller: Mr. President and Gentlemen: This paper of Mr. Ashton's is certainly comprehensive and lucid in the way he has summarized all the arguments and reasons in favor of wrought iron for the manufacture of pipe. There is one omission, however, which per-

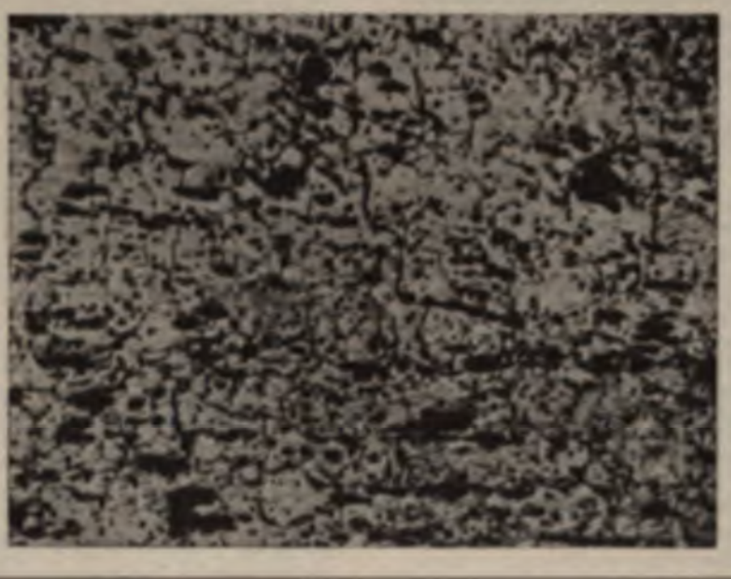


FIG. 3—MICROPHOTOGRAPH OF TRANSVERSE SECTION OF WROUGHT IRON. THE DARK STREAKS ARE SLAG.

ervice in the gas fields requires in its various l or part of the qualifications which have been ed above. Line and distribution pipe requires ds and good threads. Easy threading is par- desirable when pipe has to be threaded in the

al corrosion, due to the weather, where the pipe ground, or to the attack of water and soil con- r buried pipe, must be met.

pipe should be particularly resistant to the rrosion which may be encountered in the water conditions of the well. A weakly resistant may soon lose its usefulness as a casing, and reclaim value because of this fault.

ipe must withstand most severe service. Maxi- ngth of weld, good threads and freedom from nd highest possible resistance to the severe re essential characteristics. Wrought iron is remendous strides in this field, and is proving haps is somewhat significant and that is he fails to cite a list of cases where wrought iron pipe has shown unusually long life. The reason for this may be that there is an equally large number or larger number of cases where it has shown unusual short life; and the same might be said of steel pipe. The fact of the matter is that the feature of durability is now much better understood than ever before and all observers seem to agree that it is not a simple problem but a subject involving many factors and many problems and nothing is to be gained, therefore, in reciting isolated instances of unusual durability either for one material or the other.

In order to confine this discussion to a very reasonable time and to touch only on the high points of Mr. Ashton's able paper, I have prepared a few notes which, with your permission, I will read.

The material which goes into oil and gas pipes is too important to be decided by a theoretical discussion of the function of cinder in wrought iron or the different phys-

ical characteristics of wrought iron compared with steel. In drilling operation, where the material is sometimes stressed beyond the elastic limit, failures are to be expected occasionally, and it is under actual working conditions of this kind that steel pipe has demonstrated its superiority. That this preference is not a question of price may be seen by the fact that drillers are willing to pay the same or even a higher price for steel lines. A somewhat analogous case is the discarding of wrought iron for high pressure gas cylinders, which were formerly made of welded pipe. These are now required to be made of seamless steel. The Interstate Commerce regulations also require ammonia cylinders to be made of lapweld *steel* pipe. The large majority of high-pressure oil and gas lines are of steel. The reason for this is that steel pipe will stand 40% to 50% more pressure than wrought iron pipe of the same dimensions, which means greater carrying capacity and safety. These few illustrations indicate that steel pipe is used almost exclusively where the maximum strength and high resistance is required, but as further evidence of the general trend, I quote below the production of iron and steel skelp from records of the American Iron and Steel Institute from 1905 to 1915 in gross tons:

PRODUCTION OF IRON AND STEEL SKELP IN THE UNITED STATES.

| *Year* | *Iron* | *Steel* | *Total* | % *Iron* | % *Steel* |
|---|---|---|---|---|---|
| 1905 | 452,797 | 983,198 | 1,435,995 | 31.5 | 68.5 |
| 1906 | 391,517 | 1,137,068 | 1,528,585 | 25.7 | 74.3 |
| 1907 | 444,536 | 1,358,091 | 1,802,627 | 24.6 | 75.4 |
| 1908 | 297,049 | 853,534 | 1,150,583 | 25.8 | 74.2 |
| 1909 | 370,151 | 1,663,230 | 2,033,381 | 18.2 | 81.8 |
| 1910 | 350,578 | 1,477,616 | 1,828,194 | 19.2 | 80.8 |
| 1911 | 322,397 | 1,658,276 | 1,980,673 | 16.3 | 83.7 |
| 1912 | 327,012 | 2,119,804 | 2,446,816 | 13.3 | 86.7 |
| 1913 | 312,746 | 2,189,218 | 2,501,964 | 12.5 | 87.5 |
| 1914 | 264,340 | 1,718,091 | 1,982,431 | 13.3 | 86.7 |
| 1915 | 262,198 | 2,037,266 | 2,299,464 | 11.4 | 88.6 |

A recent canvass of 105 gas companies in New England as to their present practice with respect to gas service lines resulted as follows:

| | | % |
|---|---|---|
| Those using steel pipe exclusively | 75 | 71.42 |
| Those using steel and wrought iron | 13 | 12.38 |
| Those using wrought iron exclusively | 15 | 14.28 |
| Unknown | 2 | |

During the past twelve years the leading producers of steel pipe have increased their oil and gas pipe production nearly 100%. At the present time it is well known that the delivery on steel pipe is much worse than on wrought iron, and it is possible that for this reason there is at present more wrought iron being sold for this purpose than usual.

These are the main facts which interest the practical operator. However, there are several statements in this paper which are likely to leave an erroneous impression, the most important of which I will refer to briefly. Mr. Aston states that there is a lack of control in making Bessemer steel compared with open-hearth steel. Good pipe is made by either process, but so far as regularity of composition is concerned the modern Bessemer process affords almost ideal control, even more so than the open-hearth when run in conjunction with a properly balanced plant, including all departments from blast furnace to finishing mills. As illustrative of this in the manufacture of steel for lapweld pipe, the yearly variation between maximum and minimum carbon contents in heat of open-hearth steel is .05%, for Bessemer steel .02%. Wrought iron, made in small units by a large number of operators, each a law unto himself, is about as irregular a metallurgical product as we have. Some of the grosser irregularities are corrected, as Mr. Aston points out, by repiling and re-rolling, but the pieces are never welded together entirely and this piling increases the chances of laminations and blisters in the finished material.

Referring to the four principal advantages claimed for wrought iron:

(1) Welding: The claims as to better welding quality for wrought iron could be disproved by mill records, but the purchaser knows that the weld in steel pipe can be depended on and that steel pipe has in this respect special advantages and is generally used for autogeneous welding.

(2) Threading: Wrought iron is said to thread easily because the chips "break or crumble." The micro-sections (Figs. 2 and 3) suggest trouble with stripped threads, which is actually what experience teaches when the iron carries an excessive amount of cinder. The samples shown appear to have nearly 20% cinder rather than 1½% as claimed. Unfortunately for our friends the cinder theory cannot be made to solve both the corrosion and the threading trouble. In this case what is sauce for the goose is *not* sauce for the gander. Shops in the field are now equipped so as to cut a clean thread on steel pipe as easily as on wrought iron; if not, this can be easily remedied. There can surely be no question of the superior strength and reliability of the steel thread as the material is more homogeneous and stronger.

(3) Resistance to vibration is largely a matter of design of joint. The picture drawn by Mr. Aston of a wrought iron line continuing in service in a well with fissures extending partly through the metal is not very reassuring. The sharp root on the Briggs thread is probably responsible for many broken points. A combined committee of the American Society of Mechanical Engineers and other engineering societies has recently recommended that the present pipe thread be flattened more like the U. S. Standard.

(4) Corrosion: This is a complicated subject involving many factors, all of which must be considered in trying to explain the phenomena. The author refers to the mechanical interference of cinder in wrought iron. While in some parts of the iron this undoubtedly is a factor, he fails to point out that usually the cinder is irregularly distributed, and more important still, the cinder has a strong galvanic action which sets up local currents from the iron to the cinder, resulting in accelerated corrosion. This reaction is true of all the oxides. Mr. Aston has pointed out that rust has that same action. So it is magnetic oxide, of which the cinder is mostly made up.

The resultant of these and many other forces will determine the relative life of the pipe, and I maintain this is too complicated a problem to be solved by other than tests in actual service where both materials are put in use together under identical conditions. There are many of

reason why works making the highest grades of steel have changed from the Bessemer to the open-hearth side in the past few years.

On the other hand, while wrought iron is made in small lots and by hand, and there is no analysis of the product during the process of manufacture, the iron from the puddling furnace, so far as the base metal is concerned, is practically 100% pure. It is virtually impossible to get far from this purity, since the working of the process automatically controls the chemical characteristics of the base metal in well-puddled wrought iron.

Mr. Speller referred to the irregular distribution of slag, and to the fact that it was not well distributed in all places. Bear in mind the extremely fine state of distribution which I stated; not more than one five-hundredth to one-thousandth part of an inch apart in both width and depth of material. It would not be well-made wrought iron if the distribution became very much coarser than that, or if such distribution varied much from uniformity. Repeated tests have shown well-made wrought iron to have a uniform slag distribution of the character mentioned.

One speaker states that steel pipe corrodes no more than wrought iron in well-drained, dry lines. This is true. You do not have corrosion if there is no moisture; for moisture is one of the essential factors. Those of you using pipe in the gas industry realize that you have no control over this feature. You may at times be able to provide some drainage; but when you sink a casing you cannot control the character or condition of the soil you are going through, or its moisture content. You have to put up with what is there; and in such event you had better choose the material which is best adapted to withstand that which is there.

When the electrolytic theory of corrosion is spoken of, or corrosion due to electrolytic action, do not get this confused in your minds with electrolysis due to stray currents. So far as resistance to external electrolysis is concerned, it is doubtful whether wrought iron is better than steel, since stray currents from street railways, etc., are induced by forces foreign to the pipe line, and when a given current leaves the pipe, it must carry into solution its quantitative equivalent in iron, whether this comes from steel or iron pipe. When we speak of corrosion going on according to the electrolytic theory, however, we refer to forces set up by the metal itself. The more impure the substance is, the greater is the electrolytic action which comes into play. In addition to greater purity, wrought iron possesses an advantage over steel by reason of the fact that we have within it the slag barriers which retard the progress of corrosion as to the other causes come into play.

CONSERVATISM has been defined as the spirit of that man who is too lazy to fight and too fat to run. The conservative merchant *never advertises*, oh! no.

## CAR LOAD OF PIPE TOOLS.

IT is quite unusual to have a full carload of die-stocks and square-end-pipe-cutters sent away from a manufacturer's establishment. The Borden Company, manufacturers of Beaver stocks and dies, however, recently did ship a full carload of their Beaver easy working die-stocks and square-end pipe cutters to the Oklahoma territory, the distribution point being Tulsa.

The car was photographed before leaving Warren, Ohio, the headquarters of the Borden Company, and a reproduction of this carload accompanies the item.

CARLOAD OF DIE STOCKS UNUSUAL SIGHT.

It is not unusual with some commodities, that complete train loads are shipped out, yet attract practically no attention, but a carload of stocks and dies is quite a different matter, and it is not natural to "keep the lid on" in order to prevent public mention of the fact.

Pertinent to this subject is the statement that more than a hundred "Beaver" tools are being shipped out every day on United States government work, for use at cantonments, aviation lelds, national guard camps, naval bases, etc.

Fourteen out of the sixteen army camps have been supplied in quantities amounting up to three hundred to some of the camps.

## AUTO TOURS.

Near the close of the summer season is the ideal time for a motor trip and many motorists are now enroute.

The ever popular "Motor-Steamer" trip for those traveling either east or west is again attracting a multitude of tourists. The reason for this is very apparent, for with the new $5.00 round trip rate and special service provided for automobilists between Cleveland and Buffalo by C. & B. Line Steamers, the tourist can break the monotony of the land journey, enjoy a comfortable night's sleep on Lake Erie, make progress of 183 miles on his journey and awake refreshed and eager to resume his auto trip early the next morning.

This $5.00 round trip rate is made for automobiles 127 inches wheelbase or under (over 127 inches wheelbase, $9.00), good for return within two days.

C. & B. Line Steamers leave Cleveland and Buffalo daily at 9:00 P. M., reaching destination following morning at 7:30.

# Petroleum Situation

***Statement on Behalf of the Committee on Petroleum of the Advisory Committee, Council of National Defense — By A. C. Bedford President of Standard Oil Co. of New Jersey, Chairman.***

OPENS OFFICES IN CHARLOTTE, N. C.

# RESULTS OF DRILLING---LATEST REPORTS

## PENNSYLVANIA FIELD.

### ALLEGANY FIELD.

| | |
|---|---|
| Wolcott, Iroquois Nat. Gas | Gas |
| Chamberlain, W. N. Y. & P. T. | Gas |
| Stevens, McKean Nat. Gas | Gas |
| Gas Wells | 3 |

### BRADFORD FIELD.

| | |
|---|---|
| Lot 66, Iroquois Gas 1 | Dry |
| Lot 28, C. of B. G. & P. Corp. 2 | Gas |
| Marvin tract, South Penn Oil 33 | Gas |
| Dry | 1 |
| Gas Wells | 2 |

### MIDDLE FIELD.

| | |
|---|---|
| T. & W. Oil, Tompsett Bros. 42 | Dry |
| Jones, Nat'l. Oil 4 | Gas |
| Johnson, Johnson & Myers Bros. 10 | Gas |
| Grandin, Sand Hill Oil 5 | Gas |
| Lot 3662, Penna. Oil 1 | Dry |
| Lot 436, Jno. Cochran 38 | Gas |
| Siggins, Siggins Oil 7 | Dry |
| Weber, E. Pequignot 2 | Dry |
| Dry | 4 |
| Gas | 4 |

### VENANGO-CLARION.

| | |
|---|---|
| Sadler, Robt, McCalmont 9 | Dry |
| Pfeilsticker, David McCalmont 3 | Dry |
| Phila. & Boston, C. H. Sheasley 1 | Gas |
| Domer, Greif & Smith 5 | Dry |
| Jury, S. P. McCalmont estate 1 | Gas |
| Webb, Murphy, Toney et al 19 | Gas |
| Surrena, Chas. Sheasley 1 | Dry |
| Hovis, J. D. Hovis 2 | Gas |
| Klingler, Mitchell, Pryor et al 1 | Gas |
| Fitzgerald, United Natural Gas 1 | Dry |
| Dry | 5 |
| Gas | 5 |

### BUTLER-ARMSTRONG.

| | |
|---|---|
| Witte, Bean & Co. | Gas |
| Daubenspeck, McGill | Gas |
| Dick, Miller & Steele 1 | Dry |
| McBride, Jas. McGee et al 1 | Dry |
| Pyle, E. H. Pyle & Co. 1 | Dry |
| Donahue, Titusville Co. 1 | Dry |
| Dry | 4 |
| Gas Wells | 2 |

### SOUTHWEST PENNSYLVANIA.

| | |
|---|---|
| Washington— | |
| Patterson Mfrs. L. & H. 2 | Dry |
| Quail, Dulaney & Co. 1 | Dry |
| Dorseyville— | |
| Deitrick, Amer. N. G. 1 | Dry |
| Heuggy, Prager & Co. 1 | Dry |
| Rhine, Amer. N. G. 1 | Dry |
| Hartman, Warrendale O. & G. 4 | Gas |
| Bellevue— | |
| Wise, Steir & Co. 2 | Gas |
| Duff City— | |
| Logan, Sewickley Heights O. 1 | Dry |
| Dunlap, Conway Oil 1 | Dry |
| Economy tract, Blakeslee & Co. 82 | Dry |
| Burgettstown— | |
| Brown, R. G. Gillespie 7 | Dry |
| H. Lee, Peoples Gas 1 | Dry |
| Beaver County— | |
| Gishbauger, Rodenberger & Co. 1 | Dry |
| Twyford, Crescent O. & G. 1 | Gas |
| Miller, T. J. Bell & Co. 1 | Dry |
| Mt. Morris— | |
| Stronider, Peoples Gas 1 | Gas |
| Brant-Meigen, Phila. Co. 2 | Gas |
| Graham, N. G. of W. Va. 1 | Gas |
| Ornduff, C. & S. Gas 1 | Gas |
| Hampson, Phila. Co. 2 | Dry |
| Warrick, Mfrs. L. & H. 1 | Gas |
| Phillips, Mfrs. L. & H. 1 | Dry |
| Conklin, Phila. Co. 1 | Gas |
| Dry | 14 |
| Gas | 9 |

## WEST VIRGINIA.

| | |
|---|---|
| Mannington County— | |
| Gump, South Penn Oil 2 | Gas |
| Hannah, Philadelphia Co. 2 | Gas |
| Lanhan, Hope Gas 1 | Dry |
| Myers, Hope Gas 3 | Gas |
| Sommerville, South Penn Oil 1 | Gas |
| Brannon, South Penn Oil 1 | Gas |
| Ashcraft, Victoria Oil 1 | Dry |
| Hogue, Carnegie Gas 1 | Gas |
| Chapman, Carnegie Gas 1 | Dry |
| Smith, Carter Oil 1 | Gas |
| Bush, Hope Gas 3 | Gas |
| J. A. Smith, Carter Oil 2 | Gas |
| Straight, St. Leo Oil 1 | Gas |
| Price, Pittsburgh & W. Va. Gas 3 | Gas |
| Hayhurst, Carter Oil 2 | Dry |
| McReynolds, Philadelphia Co. 1 | Gas |
| Barteub, Carnegie Gas 1 | Dry |
| Dawson, Philadelphia Co. 1 | Gas |
| Wetzel and Tyler Counties— | |
| Higginbotham Philadelphia Co. 1 | Gas |
| Ballouz, Philadelphia Co. 6 | Dry |
| Bates heirs, Carnegie Gas 3 | Gas |
| Allen, Hope Gas 3 | Dry |
| Richmond heirs, Mfrs. L. & H. 1 | Gas |
| Morrow, Hope Gas 2 | Gas |
| Mulligan, Pittsburgh & W. Va. Gas 1 | Gas |
| Duckworth, Pittsburgh & W. Va. Gas 1 | Dry |
| Lantz, Pittsburgh & W. Va. Gas 1 | Gas |
| Shinn, Hope Gas 2 | Gas |
| R. Shinn, McIntire Oil 1 | Dry |
| Headley, American O. D. 1 | Dry |
| Marshall County— | |
| Clark, Mfrs. L. & H. 1 | Gas |
| Fish, Mfrs. L. & H. 1 | Gas |
| Williams, Carnegie Gas 1 | Gas |
| Bowers-Walton, Carnegie Gas 1 | Gas |
| McDowell, Hope Gas 1 | Gas |
| Brooke County— | |
| Brinner, Rockledge Oil 4 | Dry |
| Eagle Glass Co., S. George & Co. 1 | Gas |
| Sisterville— | |
| Archer, Racer Bros. 1 | Dry |
| Wood County— | |
| Angus, Arbutus Oil 4 | Dry |
| Ritchie County— | |
| Bush, Hope Gas 1 | Gas |

...
...
...

W. & S. Naftger, Logan G. & F. 2 ..... Gas
W. & O. Frary, Logan G. & Fuel 1 ..... Dry
E. Bowman, Medina G. & Fuel 1 ..... Gas
Wayne—W. F. Johnson, Ohio Fuel Sup. 1 ..... Gas
Mary Walton, Vanover & Co. 1 ..... Gas
Clinton—M. G. Westfall, E. Ohio Gas ..... Gas
Franklin—S. B. Fair, Medina G. & F. 4 ..... Dry

Dry ..... 3
Gas ..... 8

**RICHLAND COUNTY.**

Monroe—H. E. Applegate, Logan G. & F. 3 ..... Gas

**CUYAHOGA COUNTY.**

Dover—G. Weston, Logan G. & F. 1 ..... Gas
C. B. Tudor, Logan G. & Fuel 2 ..... Gas
J. E. McGilvary, Logan G. & F. 2 ..... Gas
C. C. Bittner, Preston Oil 1 ..... Dry

Dry ..... 1
Gas ..... 3

**VINTON COUNTY.**

Richland—Maria Cassell, Ohio F. Sup. 1 ..... Gas
Lucy Buskirk, Ohio Fuel Supply 1 ..... Gas
C. A. Moore, Ohio Fuel Supply 1 ..... Gas
J. Sands, Ohio Fuel Supply 1 ..... Gas
J. A. Collins, Ohio Fuel Supply 1 ..... Gas
C. V. Wright, Ohio Fuel Supply 1 ..... Gas
J. W. Martindale, Richland O. & D 3 ..... Gas
Sam Epstine, Logan G. & Fuel 1 ..... Dry
Jackson—W. Campbell, O. Fuel Sup. 1 ..... Gas
E. Turner, Ohio Fuel Supply 1 ..... Gas
Jno. I. Seitz, Ohio Fuel Supply 1 ..... Dry
Elk—Jno. Bancroft, Ohio F. Sup. 1 ..... Gas

Dry ..... 2
Gas ..... 10

**HOCKING COUNTY.**

Salt Creek—L. Bomgardner, Logan G. & Fuel 1 ..... Dry
S. Karschner, Logan G. & Fuel 3 ..... Gas

Dry ..... 1
Gas ..... 1

**JACKSON COUNTY.**

Washington—J. D. Welsh, O. F. Supply 1 ..... Dry
A. Leach, Ohio Fuel Supply 1 ..... Dry

Dry ..... 2

**PERRY COUNTY.**

Thorn—W. Neel, Col. Nat. Gas 1 ..... Gas

## CENTRAL OHIO FIELD.

**SUMMARY OF COMPLETED WORK.**

| | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Licking | 2 | 0 | 1 | 1 |
| Fairfield | 1 | 0 | 0 | 1 |
| Knox | 1 | 0 | 1 | 0 |
| Ashland | 6 | 0 | 4 | 2 |
| Medina | 5 | 0 | 0 | 5 |
| Lorain | 1 | 0 | 0 | 1 |
| Wayne | 14 | 130 | 3 | 8 |
| Richland | 1 | 0 | 0 | 1 |
| Cuyahoga | 5 | 8 | 1 | 3 |
| Vinton | 12 | 0 | 2 | 10 |
| Hocking | 2 | 0 | 1 | 1 |
| Coshocton | 0 | 0 | 0 | 0 |
| Holmes | 0 | 0 | 0 | 0 |
| Jackson | 2 | 0 | 2 | 0 |
| Perry | 1 | 0 | 0 | 1 |
| Marion | 0 | 0 | 0 | 0 |
| Total | 53 | 138 | 15 | 34 |

## LIMA FIELD.

**WOOD COUNTY.**

Bloom—S. L. Swartz, S. L. Swartz 1 ..... Gas

**AUGLAIZE COUNTY.**

Washington—G. Wallam, Al Kuenke 1 ..... Gas
Salem—Benton hrs., Van Wert Oil 1 ..... Gas

Gas ..... 2

**VAN WERT COUNTY.**

Ridge—Frank Palmer, Ralph Bros 2 ..... Dry

## INDIANA FIELD.

**JAY COUNTY.**

Penn—D. J. Edmundson, Prairie Oil 3 ..... Dry
J. E. Paxon, Murphy & Co. 1 ..... Dry
W. E. Paxon, M. W. Jones & Co. 1 ..... Dry
L. P. Grissell, Prairie Oil 1 ..... Dry
Stanbury, Wilson, Gordon & Co. 8 ..... Dry

Dry ..... 5

**GIBSON COUNTY.**

Washington—J. W. Ewing, Abe Brunner & Co. 1 ..... Dry
M. McRoberts, Ohio Oil 1 ..... Dry

Dry ..... 2

**PIKE COUNTY.**

Washington—Infirmary, A. B. Bement 1 ..... Dry
Claud Johnson, A. B. Bement 1 ..... Dry

Dry ..... 2

**SULLIVAN COUNTY.**

Turman—Geo. W. Osburn, Scott & Riggs 1 ..... Dry
Fairbanks—M. J. Beard, E. R. Riggs 24 ..... Dry

Dry ..... 2

## KENTUCKY-TENNESSEE.

**WAYNE COUNTY.**

Cooper—A. J. Roberts, Wood Oil 28 ..... Dry
Shoemaker, Daugherty & Snyder 9 ..... Dry
Steubenville—Powell, C. McBeath, Rec. 3 ..... Dry

Dry ..... 3

**WOLFE COUNTY.**

Campton—O. Cecil, Mountain Oil 1 ..... Dry

**ESTILL COUNTY.**

Irvine—A. Wagers, Meldren & Keating 7 ..... Dry
Wm. Arvin, Empire Gas & Fuel 12 ..... Dry
Adam Walling, Lucky Star Oil 1 ..... Dry
Luther Young, Empire Gas & Fuel 4 ..... Dry
J. Arthur, Sun Co. 7 ..... Dry
A. Powell, W. L. Parmenter & Co. 17 ..... Dry
Wm. Cox, Empire Gas & Fuel 3 ..... Dry
Dan McCoy, Wood Oil 4 ..... Dry
James Arthur, Sun Co. 9 ..... Dry
E. Powell, W. L. Parmenter & Co. 18 ..... Dry
J. L. Edwards, Empire Gas & Fuel 8 ..... Dry
Chas. Cox, Crown Oil 15 ..... Dry
H. Bicknell, McMahon & Watchorn 1 ..... Dry
J. L. Edwards, Empire Gas & Fuel 9 ..... Dry

Dry ..... 14

**POWELL COUNTY.**

Ashley—Wm. Ledford, Beckett-Iseman Co. 2 ..... Dry
J. Wise, McMahon & Watchorn 1 ..... Dry
Fred Kinzer, W. S. Raydure 1 ..... Dry
Luther Caldwell, Ohio Oil 1 ..... Dry

[illegible] Cumberland Petroleum 4 — Dry
[illegible] Campbell Cherokee Oil 3 — Dry
[illegible] Ohio Valley Oil 1 — Dry

LEE COUNTY

[illegible] Harper Lee Fuel Oil 1 — Gas
[illegible] Rockcastle Oil 1 — Dry

ALLEN COUNTY

[illegible] Davenport, Ohio Cities Gas 2 — Dry
[illegible] Penn Kentucky Oil & Gas 1 — Dry
[illegible] Caswell & Co 1 — Dry

BATH COUNTY

[illegible] W. P. White Oil 1 — Dry
[illegible] — Dry
[illegible] Warren Stover & Co 1 — Gas

CLARK COUNTY

[illegible] Nancy Meredith, Owensburg & Co 1 — Dry

METCALF COUNTY

[illegible] M. Hamilton, Paducah Oil 1 — Dry
[illegible] Thompson, Paducah Oil 1 — Dry

GREEN COUNTY

[illegible] Mrs. Bell Morrison & Co 1 — Gas

ROCKCASTLE COUNTY

[illegible] Bear Rock Castle Oil & Gas — Dry
[illegible] H. C. Slater & Co 1 — Dry

ENOR COUNTY

[illegible] J. Perman, D. A. Dow White 1 — Dry

WEBSTER COUNTY

[illegible] Wagner & Lockett 1 — Dry

JACKSON COUNTY

[illegible] Miller, Cumberland Producing & [illegible] — Dry
[illegible] — Dry
[illegible] Keller, Harris & Co 1 — Dry
[illegible] Matthews Syndicate — Dry

OWSLEY COUNTY

[illegible] Campbell, Farmers, Peasham 1

## TENNESSEE

SCOTT COUNTY

[illegible] & Gas 1 — Dry

## ILLINOIS FIELD

CLARK COUNTY

[illegible] Jungle Fuel Kuhn 6 — Dry
[illegible] Nat Park 10 — Dry
[illegible] — Dry
[illegible] Spencer, Nat Syndicate 1 — Dry

CUMBERLAND COUNTY

[illegible] — Dry

CRAWFORD COUNTY

[illegible] Stewart & Jessup 1 — Dry
[illegible] — Dry

Lacking [illegible] Headley Kewanee 10 & Co 1 — Dry
M. Newlin, Newlin & Co 1 — Dry
H. Coulter, Champwater & Co 1 — Dry
Montgomery, M. & K. Fee Laughner Bros. & Co 4 — Dry
Honey Creek, J. J. Ford, Selby & Custer 10 — Dry
[illegible] Hardy, John M. Nally & Co 1 — Gas
J. J. Ford, Selby & Custer 18 — Dry

Dry — 8
Gas — 1

LAWRENCE COUNTY

Dennison, J. W. Clark, Ohio Oil 10 — Dry

CLINTON COUNTY

Irishtown, J. Kinser, Flat Branch Oil 1 — Dry

MARION COUNTY

Sandoval, M. Dykstra, Clear Oil 1 — Dry

WABASH COUNTY

Wabash, Mullineaux, Mullineaux & Co 1 — Dry

McDONOUGH COUNTY

Lamoine, J. L. Williams, Shulte & Co 1 — Dry

## KANSAS

MONTGOMERY COUNTY

[illegible] Webb, Winters et al 1 — Dry
[illegible] Needles, Durham et al 4 — Dry
[illegible] DeClair Economy Oil & Rev 2 — Gas
[illegible] Shertzer et al 2 — Gas
[illegible] Needles, Durham et al 1 — Dry
[illegible] Webb, Winters et al 1 — Dry
[illegible] Bigelow, Kent et al 1 — Dry
[illegible] Himeles, Martin et al 1 — Dry
[illegible] Cage, Perryman et al 4 — Dry

Dry — 7
Gas — 2
[illegible] — [illegible]

CHAUTAUQUA COUNTY

[illegible] Hoffman, Prairie Oil & Gas — Dry
[illegible] Hoffman, Sachem [illegible] — Dry
[illegible] Moore, Kent et al 1 — Dry
[illegible] — Dry
[illegible] Hoffman, Sales et al 2 — Dry
[illegible] Fuel, Sachem Oil 1 — Gas
[illegible] Brosius, Epp et al 1 — Dry
[illegible] Blair, Duffield et al 3 — Dry

Dry — 7
Gas — 1
[illegible] — [illegible]

BUTLER COUNTY

[illegible]
[illegible] — Dry
[illegible] — Dry
[illegible] — Dry
[illegible] — Gas
[illegible] — Dry
[illegible] Smith et al 1 — Dry
[illegible] — Dry
[illegible] — Dry
[illegible] — Dry
[illegible] — Dry
[illegible] Hoffman, Peerless Oil & Gas — Dry
[illegible] — Dry
[illegible] — Dry
[illegible] Kistler, Eastman et al — Dry

Augusta and Vicinity

[illegible] — Dry
[illegible] — Dry

23-28-4, Brown, Prairie Oil & Gas 1 ..... Dry
17-29-4, Martin, Ohio Oil 1 ..... Dry
29-28-4, Blood, Ohio Oil 18 ..... Dry
8-29-4, Evans, Ohio Oil 1 ..... Gas

Dry ..... 20
Gas ..... 2
Gas production ..... 7,000,000

WILSON COUNTY.

6-29-16, Lucky John Oil 1 ..... Gas
23-28-15, Lynch, Dixie Oil 4 ..... Gas
23-28-15, Lynch, Dixie Oil 7 ..... Gas
10-30-15, Moulton, Gieser et al 2 ..... Gas

Gas ..... 4
Gas production ..... 3,000,000

NEOSHO COUNTY.

22-27-19, Howard, Midway Oil 8 ..... Dry
31-27-19, Burkhart, Common'th Oil & Gas 21 ..... Dry
32-27-19, Mundy, Wells et al 17 ..... Dry

Dry ..... 3

ALLEN COUNTY.

South of Iola, Stuckey, Neosho Oil Ref. 17 Gas

Gas ..... 1
Gas production ..... 1,000,000

FRANKLIN COUNTY.

25-16-21, Morrison & Woolf 2 ..... Dry

MIAMI COUNTY.

7-17-22, Gilmore, Eliott et al 1 ..... Gas
11-16-22, Caughlin, Hershfield et al 1 ..... Gas
33-17-22, Green, Colcord Oil 1 ..... Gas
25-16-22, Dinn, Woolf et al 1 ..... Dry

Dry ..... 1
Gas ..... 3
Gas production ..... 1,750,000

WILDCATS.

Labette County—
14-33-17, Haugh, Carden Oil 4 ..... Gas
6-32-20, Purdy et al 1 ..... Dry
35-33-19, Royer et al 1 ..... Gas
Anderson County—
20-19-21, Marland et al 1 ..... Dry
Woodson County—
14-26-13, Wilhite, Pachequette Oil 2 ..... Gas
14-26-12, Wilhite, Pachequette Oil 3 ..... Gas
Elk County—
10-30-13, Hall, Nelson et al 1 ..... Dry
34-31-12, Drum, Saschem Oil 13 ..... Gas
34-31-12, Inge, West & Haxlett 29 ..... Gas
2-31-12, McGuire, Bruen et al 2 ..... Dry
34-31-12, Wisemont, West & Haxlett 7 ..... Dry
29-31-12, Bollinger, West & Haxlett 1 ..... Gas

Dry ..... 5
Gas ..... 7
Gas production ..... 12,000,000

## OKLAHOMA.

WASHINGTON COUNTY.

30-27-13, Fee, W. A. Letson 5 ..... Dry
29-27-13, Fee, Wm. Hamilton 5 ..... Dry
22-28-13, Stephenson Natl. Oil 1 ..... Dry
13-27-12, Waters, Cudahy Oil 3 ..... Dry
8-26-13, Whiteturkey, Nat'l Oil 9 ..... Dry
7-28-13, Fee, Tidal Oil 5 ..... Dry
26-17-13, Jones, Minnehoha Oil 11 ..... Dry
34-28-14, Boyd, Frank Bucher 1 ..... Dry

Dry ..... 8

BIRD CREEK, OWASSO, VERA.

20-20-13, Carter, Hastings et al 2 ..... Dry
9-20-13, Fee, Kellough et al 4 ..... Dry

Dry ..... 2

CHEROKEE [illegible] YELLOW SAND

3-26-16, Barr, Carter Oil 20 ..... Dry
7-26-16, Goodman, Amalgamated Oil 14 ..... Dry
35-26-16, Lott, McDowell et al 1 ..... Dry

Dry ..... 3

OSAGE DISTRICT.

15-27-11, Indian Ter. Ill. Oil 1 ..... Gas
5-21-10, Sinclair Oil & Gas 20 ..... Dry
26-27- 8, Buffalo, American Pet. 7 ..... Gas
20-27- 8, Pearson, American Pet. 7 ..... Gas
5-21-10, Sinclair Oil & Gas 23 ..... Dry
36-28-10, Osage Natural Gas 1 ..... Dry
6-24-10, Echo Oil 1 ..... Gas
22-20-12, West & Hazlett 12 ..... Dry

Dry ..... 4
Gas ..... 4
Gas production ..... 17,500,000

CLEVELAND, PAWNEE COUNTY, MANNFORD.

1-20- 7, Little, Selby Oil 1 ..... Gas
34-18-10, Johnson, W. H. Graham 1 ..... Dry
12-19- 5, Miller, Magnolia Petroleum 1 ..... Dry
32-19- 8, Nero, Cushing Development 3 ..... Dry
1-19- 8, Ashbury, Romona Oil & Gas 1 ..... Dry
21-17- 8, Kano, Prairie Oil & Gas 1 ..... Dry
1-28-10, Carner et al 9 ..... Dry
18-19- 6, Long, Roxana Petroleum 1 ..... Gas

Dry ..... 6
Gas ..... 2
Gas production ..... 2,500,000

CUSHING, SHAMROCK.

34-14-7, Boone, Iron Mountain Oil 5 ..... Dry
11-18-6, Smith, Iron Mountain Oil 2 ..... Gas
14-17-7, West, Cosden Oil & Gas 7 ..... Dry
28-17-7, Keys, Sinclair Oil & Gas 42 ..... Gas
2-18-7, Jimsey, Uncle Sam Oil 5 ..... Dry
3-18-7, Wilson, Culbertson et al 1 ..... Dry

Dry ..... 4
Gas ..... 2
Gas production ..... 11,000,000

TULSA, GLENN POOL, WICEY, KELLYVILLE.

25-17-14, Peters, H. H. Galbreath 1 ..... Dry
34-17-13, Agent, Damon Oil 5 ..... Dry
36-17-14, Rothammer, Hornecker et al 3 ..... Dry
1-18-12, Barnett, Cavanaugh et al 1 ..... Dry
15-17-11, Fee, Aetna Oil 15 ..... Dry
24-18-14, Horn, Edgar Oil 3 ..... Dry
29-17-14, McKim, Caney River Gas 2 ..... Dry
35-17-14, Kelly, Atlantic Petroleum 1 ..... Dry
32-17-13, Allen, Braden et al 2 ..... Dry
31-17-13, Bertoff, Atlantic Pet. 1 ..... Dry
25-19-12, Thomas et al 7 ..... Dry
2-18-14, McIntosh, Thompson et al 1 ..... Dry
25-18-14, Scott, Edgar Oil 1 ..... Dry
31-16-13, Moore, Magnolia Petroleum 1 ..... Gas
33-16-13, Jefferson, Cosden Oil & Gas 1 ..... Gas
12-16-13, Agent, Eastern Oil 2 ..... Dry
24-16-14, Grayson, Atlantic Petroleum 1 ..... Gas
25-18-12, Parks, Posey Oil 6 ..... Dry
17-17-12, Berryhill, Oklahoma State Oil 15 ..... Dry
34-18-11, Fife, Alco Oil 3 ..... Dry
27-17-13, Buck, Prairie Oil & Gas 2 ..... Dry
31-17-13, Childers, Iron Mountain Oil 1 ..... Dry
31-17-13, Berthof, Cosden Oil & Gas 1 ..... Dry
33-17-13, Allen, Livingston et al 1 ..... Dry
2-16-11, Grant, Graham et al 1 ..... Dry

[illegible] Sapulpa Light & Fuel [illegible] Gas
[illegible] Dry
[illegible] Bradstreet et al [illegible] Dry

[illegible]

### ORMUNDE MORRIS

[illegible] Dry
[illegible] Gas
[illegible] Dry
[illegible] Dry
[illegible] Dry
[illegible] Dry
[illegible] Dry

[illegible]

### HAMILTON SWITCH

[illegible] Dry

### BALD HILL ROCK SAND

[illegible] Dry
[illegible] Dry
[illegible] Dry
[illegible] Dry
[illegible] Gas
[illegible] Dry
[illegible] Dry

[illegible]

### [illegible] MUSKOGEE ROGERS COUNTY

[illegible] Dry
[illegible] Dry
[illegible] Dry
[illegible] Gas
[illegible] Dry
[illegible] Dry
[illegible] Dry
[illegible] Dry
[illegible] Dry
[illegible] Dry
[illegible] Dry
[illegible] Dry
[illegible] Gas
[illegible] Gas
[illegible] Dry
[illegible] Dry
[illegible] Dry
[illegible] Dry

[illegible]

### [illegible] DISTRICT

[illegible] Gas
[illegible]

[illegible]

### [illegible] COUNTY

[illegible]

### RAY COUNTY

[illegible] Monday, Sinclair Oil & Gas [illegible] Dry
[illegible] Carroll Roxana Petroleum [illegible] Dry

Dry [illegible]

### WILDCATS

Pontotoc County

[illegible] Wade Mascho et al [illegible] Gas

Gas [illegible]
Gas production [illegible]

### GARFIELD AND NOBLE COUNTIES

Gasher

[illegible] Dry
[illegible] Dry

Dry [illegible]

## KANSAS

### SUMMARY OF WELLS COMPLETED

| | Comp | Prod | Dry | Gas |
|---|---|---|---|---|
| Montgomery | 44 | [illegible] | [illegible] | [illegible] |
| Chautauqua | [illegible] | [illegible] | [illegible] | [illegible] |
| Butler | [illegible] | [illegible] | [illegible] | [illegible] |
| Wilson | [illegible] | [illegible] | [illegible] | [illegible] |
| Neosho | [illegible] | [illegible] | [illegible] | [illegible] |
| Allen | [illegible] | [illegible] | [illegible] | [illegible] |
| Linn [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| Miami | [illegible] | [illegible] | [illegible] | [illegible] |
| Wildcats | [illegible] | [illegible] | [illegible] | [illegible] |
| Total | [illegible] | [illegible] | [illegible] | [illegible] |

## OKLAHOMA

### SUMMARY OF COMPLETED WORK

| | Comp | Prod | Dry | Gas |
|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

## MID CONTINENT

### SUMMARY OF WELLS COMPLETED

| | [illegible] | [illegible] | [illegible] | [illegible] |
|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

## TEXAS PANHANDLE

### WICHITA AND WILBARGER COUNTIES

[illegible]
[illegible] Dry
[illegible]

### CLEBURNE DISTRICT

[illegible]
[illegible]
[illegible]
[illegible]

BURKBURNETT.

| | |
|---|---|
| Warren, Cozy Oil 4 | Dry |
| Rexford, Jones Oil & Gas 7 | Dry |
| Waites, Kent et al 2 | Dry |
| Warren, Cozy Oil 5 | Dry |
| Weibner, Cashion Oil 1 | Dry |
| Dodson, KKK. Oil 9 | Dry |
| Waites, Kent et al 5 | Dry |
| Roller, Mann et al 11 | Dry |
| Waites, Kent et al 6 | Dry |
| Rexford, Verchoile Oil & Gas 2 | Dry |
| Beach, Willis et al 1 | Dry |
| Beach, Willis et al 2 | Dry |
| Birk, Pondenberg 1 | Dry |
| Dodson, Plains Oil & Gas 1 | Dry |
| Dry | 14 |

STRAWN.

| | |
|---|---|
| Fee, Texas & Pacific Coal 181 | Dry |

WILDCATS.

| | |
|---|---|
| Palo Pinto County— | |
| Robinson, Texas & Pacific Coal 3 | Gas |
| Archer County— | |
| Deminger, Anticline Oil 1 | Dry |
| Stephens County— | |
| Cash, Texas & Pacific Coal 1 | Dry |
| Palo Pinto County— | |
| Belding, Sinclair Oil & Gas 1 | Dry |
| Dry holes | 3 |
| Gas | 1 |

## GULF COAST.

SUMMARY OF COMPLETED WORK.

| | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Anse La Butte | 0 | 0 | 0 | 0 |
| Batson | 7 | 230 | 0 | 0 |
| Edgerly | 4 | 2,100 | 2 | 0 |
| Goose Creek | 53 | 24,200 | 15 | 2 |
| Humble | 29 | 4,655 | 10 | 1 |
| Jennings | 3 | 295 | 0 | 0 |
| Markham | 4 | 160 | 1 | 1 |
| Spindletop | 5 | 135 | 3 | 0 |
| Saratoga | 5 | 95 | 1 | 0 |
| Sour Lake | 18 | 1,195 | 7 | 0 |
| Vinton | 8 | 465 | 3 | 2 |
| Damon Mound | 5 | 500 | 4 | 0 |
| New Iberia | 1 | 0 | 1 | 0 |
| Welsh | 3 | 10 | 2 | 0 |
| Miscellaneous | 17 | 30 | 15 | 1 |
| Total | 162 | 34,070 | 64 | 7 |

## NORTH LOUISIANA.

| | |
|---|---|
| Caddo — | |
| 10-10- 5, Giddens, A. J. Yoke Oil & Gas 1 | Dry |
| 5-20-16, Rives, Gulf Ref. 5 | Dry |
| 30-20-15, La Robaderie, Mogul Oil 1 | Dry |
| 3-20-15, Muslow, Penn-Wyoming Oil 1 | Dry |
| 32-13-11, Nabors, Producers Oil 11 | Dry |
| 24-15- 4, Burroughs Land, Gulf Ref. 1 | Dry |
| Harrison County, Mosley, Gulf Prod. 1 | Dry |
| Panola County—Guill, Bell, Evans & Snyder 1 | Dry |
| 34-10- 7, Russell, Vogeler Oil 1 | Dry |
| 22-22-13, Scovell-Gaines, Dallas Oil 1 | Dry |
| 30-20-15, La Robaderie, W. G. Strange | Dry |
| 27-13-11, Wilson, De Soto Oil & Ref. 1 | Dry |
| Dry | 12 |

## NORTH LOUISIANA.

WELLS COMPLETED AND PRODUCTION.

| | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Total July | 45 | 6,541 | 11 | 0 |
| Total June | 40 | 6,270 | 10 | 3 |
| Difference | 5 | 271 | 1 | 3 |

## TEXAS-LOUISIANA.

SUMMARY OF COMPLETED WORK.

| | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Texas Panhandle | 84 | 3,821 | 24 | 1 |
| Gulf Coast | 162 | 34,070 | 64 | 7 |
| North Louisiana | 45 | 6,541 | 11 | 0 |
| Total | 291 | 44,432 | 99 | 8 |

## NATURAL GAS MEN REPRESENTED AT CONVENTION OF NATIONAL IMPORTANCE.

AT the Convention of the Chamber of Commerce of the United States of America, to be held in Atlantic City, N. J., September 18th, 19th, 20th and 21st, 1917, the Natural Gas Association of America will be represented by Mr. A. C. Bedford, Hope Natural Gas Company, as National Councillor and Delegate, and Mr. Joseph F. Guffey, General Manager, Philadelphia Company; Mr. Martin B. Daly, President-General Manager, the East Ohio Gas Company; Mr. W. Y. Cartwright, Vice-President, Union Gas & Electric Company; Mr. John E. Gill, President, Manufacturers Light & Heat Company; Mr. Glenn T. Braden, President, Oklahoma Natural Gas Company, as delegates.

## A WARNING.

THE following warning appears in the July *Press Bulletin* of the United States Geological Survey.

It sometimes happens that men who have no connection with the Geological Survey of the Interior Department pass themselves off as members of that organization either to invest themselves with unmerited importance or to obtain information or facilities that might otherwise be denied them. It should be generally known to the public that each member of the Federal Geological Survey carries an identification card signed by the Secretary of the Interior and the Director of the Survey, and he is always ready to produce this card on request, should there be any question of his official standing.

Recently a person giving his name as George H. Smith has been reported from Oregon as representing that he is employed by the United States Geological Survey "to look up minerals for it." There is no such name on the rolls of the Survey, and anyone bearing it who claims to be doing work for the United States Geological Survey in Oregon should be treated as an impostor.

## MY SON, DO THY BEST.

BY J. H. WALKER

[illegible] Man saying I pray thee [illegible] give unto me the Secret of Satisfaction

Behold I have been in Service unto a Gas [illegible] Three Hundred and Sixty Five Days, and meseth unto me that in that time surely the Author would see wherein they have an important Service [illegible] Wherefore for [illegible] pass me [illegible] the [illegible] [illegible] do the [illegible] [illegible] a measure [illegible]

[illegible] with [illegible] which must [illegible]

[illegible] for [illegible]

[illegible] the thing which [illegible] [illegible] the [illegible] things are [illegible] a ladder [illegible] [illegible] for [illegible] the Road to Satisfaction [illegible] and the [illegible] of being [illegible] [illegible] the unto [illegible]

[illegible] [illegible] [illegible] [

## APPARATUS TO DETERMINE SPECIFIC GRAVITY OF GASES.

T. H. Kerr, Engineer, and E. F. Schmidt, Assistant Engineer, The Ohio Fuel Supply Company, Columbus, Ohio.

Since the orifice meter has become so widely used for the measurement of high pressure natural gas, many different types of apparatus for the determination of specific gravity, embodying the principle of effusion have been placed on the market. So many sources of error uncontrollable by human agencies have been encountered that, except under ideal laboratory conditions, the most improved type of effusion apparatus has been found very unreliable.

At the instigation of several gas companies the Bureau of Standards at Washington, D. C., investigated all the types of specific gravity apparatus obtainable. Their investigations resulted in the abandoning of the effusion type and the adoption of a modified type of the weighing instrument. In the Technologic Paper of the Bureau of Standards, No. 69, entitled "A Specific Gravity Balance for Gases," the investigations and results of the Bureau can be found.

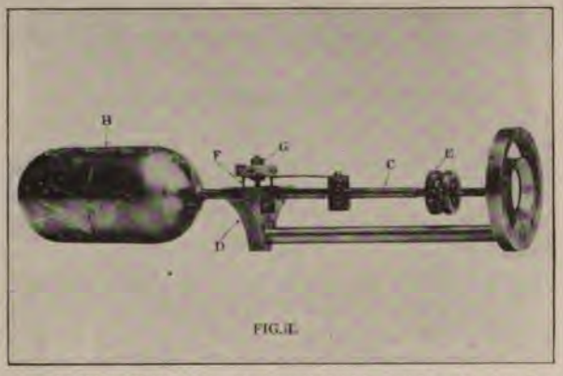



FIG. 1.—APPARATUS FOR DETERMINING GRAVITY OF GASES.

We desired an instrument for either laboratory or field use and developed the one shown in Fig. 1. It has the combined advantages of stability and lightness, weighing only fifteen pounds complete with carrying case. It consists of a water jacketed balancing chamber, a metal balance beam, a U gauge filled with mercury for measuring pressures, a vacuum pump, drying tubes for drying the air, and a tripod on which the instrument is mounted. In addition to the above a barometer is also necessary for the determination of absolute pressure.

Much experimenting was done before the apparatus shown was finally produced. The balance chamber was cast in one piece of aluminum and screw caps which were provided with plate glass windows were fitted to either end, thus allowing ample light for observing the position of the beam. Most of the aluminum castings, however, proved to be porous and in order to make the balance chamber air tight, a piece of cold drawn steel tubing was fitted inside and machined so that with the end caps drawn up against soft rubber gaskets, an air tight joint was provided. Much experimenting was also done to make a substantial and sensitive balance beam which was finally constructed as shown in Fig. 4. It consists of an air tight bulb (B) of spun brass, counterweighted with adjustable balancing weights (E). The bearing points (F) are also adjustable (G), allowing the center of gravity of the beam to be raised or lowered, thus providing a control of the sensibility. The needle points rest on glass bearings which arrangement was adopted by the Bureau of Standards as being practically without friction. The bearings are made so as to give the beam neither lateral or longitudinal motion, assuring a constant position during a determination of gravity.

The method used in making a test is as follows: The beam is adjusted so that it will come to equilibrium in atmosphere with the counterweight end slightly below a horizontal plane through the bearing points. In this position a vacuum is required to bring it to a level position which position is affected by bringing into alignment the cross hair mounted permanently on glass and the line on the end of the balance beam. The air that is allowed into the chamber when making this balance must be drawn through some drying agent assuring dry air. The vacuum reading is then observed on the U gauge. This should be repeated and checked. The balancing chamber is then purged of air and the gas allowed to fill it to a pressure sufficient to bring the beam to the same position of equilibrium again. The pressure is then observed on the U gauge. These pressures are then reduced to absolute pressure, knowing the barometric pressure at the time of making the test. The specific gravity of the gas is the quotient of the absolute air

FIG. 2.—APPARATUS FOR DETERMINING GRAVITY OF GASES.

... divided by the absolute gas pressure. ... Air ...

... Weights of gases is given below

... Pressure 755 mm

... Pressures

Air 187 mm

Gas 1[illegible] mm

755 − 187

Specific Gravity 0847

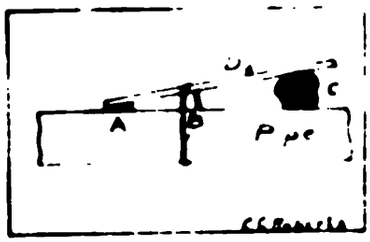
755 − [illegible]

... development of this instrument has made the ... determination of specific gravity in practice ... has made it possible to measure high pressure ... gases with a degree of accuracy which has hitherto ...

## TEMPORARY METHOD OF STOPPING LEAKS

... a number of ... pipes ... when there are ... the ... pipes ... temporarily ... of the following method ... return with the ... equipment.

... represents the ... which ... a ... rubber




... apparatus ...

... gas ... stopped at ... leak

... apparatus ...

... leak

... pipe ...

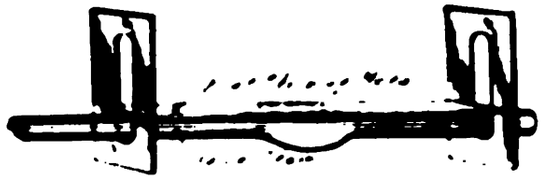
... A ...

... pipe ...

... pipe.

## TO PREVENT PASSING OF UN-REGISTERED GAS

... the ...



... apparatus ... the ...

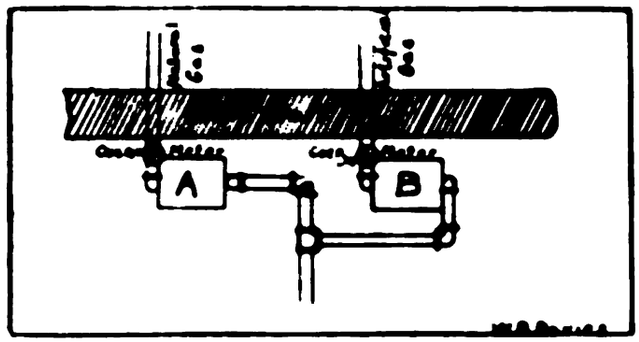
METER

... fastened ... the ... when ... and ... the ...

## PRECAUTION NECESSARY WHERE TWO GAS COMPANIES OPERATE

... where ...

... meter A and ... meter ... pressure ... during ... tending to ... that the gas ... through the artificial




... MINUTE ...

... the ... pipes ... the ... gas ... the ... gas ...

... the ...

## TO DETECT WHETHER GAS HAS NOT REGISTERED

... the ...

PART OF INSIDE FRONT OF METER SHOWING "U" SHAPED COMPARTMENT TO BE FILLED WITH OIL OR COLORED LIQUID

... the ...

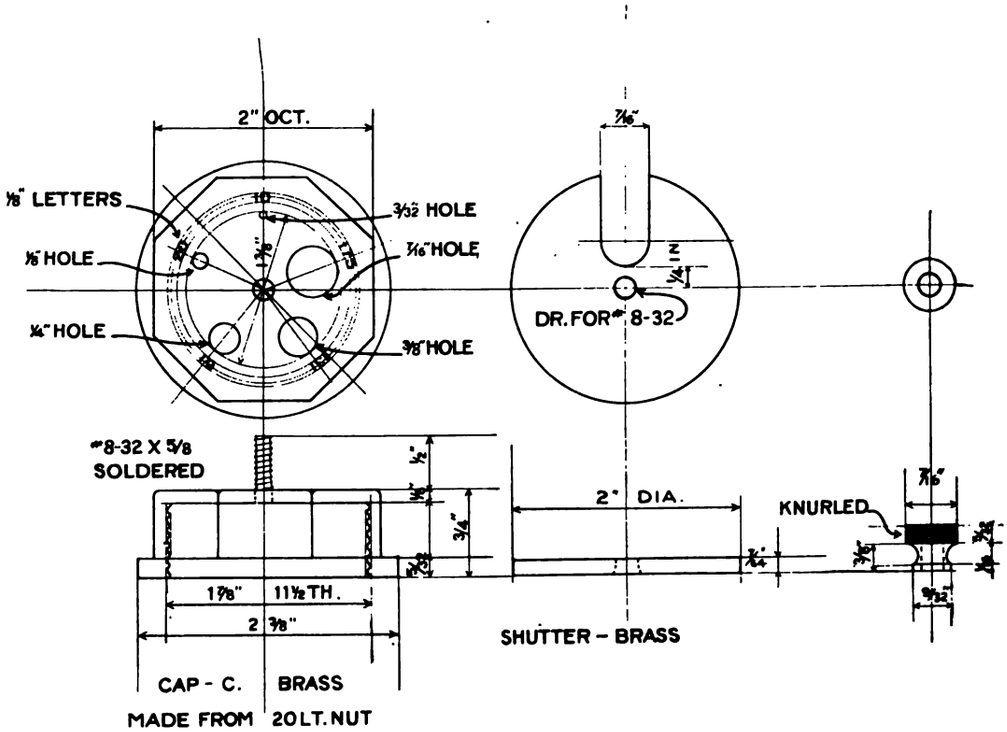
## MULTIPLE RATE CAP FOR TESTING METERS.

E. C. Weisgerber, Sales Manager, Equitable Meter Co., Pittsburgh, Pa.

In testing meters it is always necessary to test them for the different rates of flow, namely, 10 ft. per hour, 20 ft., and then upwards to the open flow test. Most companies who do this work have a different cap for each flow, and it is necessary to unscrew the one cap and place another, etc. In many cases the caps are lost, and all of this takes considerable time, but by making the multiple rate cap, as per sketch, all of these tests except the open flow test can be made through the cap.

The illustration shows a standard 20-light meter nut in which a brass blank has been soldered, and this blank is drilled with holes which will pass the desired amount of gas at the desired prover pressure, namely, the holes are of sufficient size to pass 10, 20, 61, 131 and 175 cu. ft. of gas or air at 1½-inch pressure. These caps can also be made for 5-light, 10-light and other sizes, and their use will greatly facilitate the testing of meters.

A shutter is made, as per sketch, with an opening large enough to allow the largest hole exposed. This shutter is held in place by a nut which turns on the screw which has been soldered to the cap proper, and the holes in the meter cap are placed so that the shutter can be turned in any direction, but the slot only allowing the desired hole for capacity to be open, thereby the gas or air must flow through the desired orifice.




MULTIPLE RATE CAP FOR TESTING METERS.

## TO ENLARGE CAPACITY OF METERS.

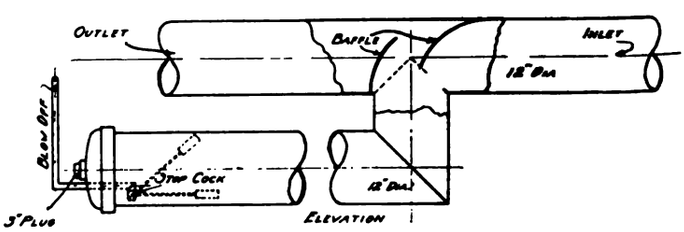
J. R. Gilbert, Fort Worth, Texas.

Take off side tubes and file out the openings into the meters. File wherever possible and attach side pipes of brand known as "Texas Special." This will increase the capacity of small meters remarkably, especially three light meters.

## BAFFLE TEE DRIP WITH AUTOMATIC BLOW OFF.

R. B. Lloyd, Superintendent Lines, H. O. Ballard, Superintendent Production, Wichita Natural Gas Co., Bartlesville, Okla.

This drip is made entirely of welded fittings, the welding being done by the Oxy-Acetylene process. The automatic blow-off device consists merely of a stop-cock




BAFFLE TEE DRIP.

with a float attached to it, the float being made of thoroughly dried pine wood covered with copper and thoroughly sealed. The 3-inch plug is for emergency use in case the automatic blow-off should get out of order.

# AROUND THE BELT

**New Wells, New Pipe Lines, New Contracts, Additions and Extensions. A Fund of Valuable News Gathered for the Journal Through Many Sources**

## TRADE PERSONALS

It may be noted that the names appearing under this personal head are not necessarily those of men interested in the gas industry. Many of them are interested in the gas field. Those wishing to learn of matters pertaining to men who are in the field of petroleum and its products should refer to THE GAS INDUSTRY, a magazine published at the Ellicott Square Building, Buffalo, N. Y., which devotes its entire energies to petroleum and gas matters. That magazine is published in the interest of THE NATIONAL GAS JOURNAL, each magazine being the logical medium for the respective field. In this way each magazine renders valuable assistance in the interests it represents. **Publisher's Note**

Sloan Lamont of the Metric Metal Works, Erie, Pa., was re-elected Secretary of the Association of Natural Gas Supply Men, at a recent meeting of the Board of Directors of that Association.

Joseph Arthur has resigned his position as Assistant General Purchasing Agent of the Philadelphia Company and is now Vice President of the Burton Supply Company, Pittsburgh, Pa.

Grant Fox of the Associated Geological Engineers, is on a trip to Texas and other western points.

Thomas D. Cox of the Pittsburgh Meter Company, Pittsburgh, Pa., has been again elected Treasurer of the Association of Natural Gas Supply Men.

Thomas Davidson was elected President of the Association of Natural Gas Supply Men at a recent meeting of the Board of Directors of that organization.

Lewis Parr Kay, attorney for the Oklahoma Natural Gas Company, has been appointed by Governor Robertson a member of the Oklahoma State Chamber of Commerce.

Mr. William B. of the Ludlow Valve Manufacturing Company, Pittsburgh, has been elected Vice President of the Association of Natural Gas Supply Men.

## DECEASED

Hiram P. connected formerly with the Natural Department of the Kansas Natural Gas Company, Independence, Kan., died at his home in Meadville, Pa., Aug. 1st last.

Henry B., at an earlier date connected with the Kansas Natural Gas Company, died recently at Franklin, Pa.

## PER CUBIC FOOT—RATES

In the following items the gas rates referred to [illegible] are per thousand cubic feet unless otherwise stated. Those desiring a gas rate should refer to THE GAS INDUSTRY, published at the Ellicott Square Building, Buffalo, N. Y., which devotes its entire energies to petroleum and gas matters. That magazine is published in the interest of THE NATIONAL GAS JOURNAL, each magazine being the logical medium for the respective field and each rendering such assistance in the interests it represents. **Publisher's Note**

**KANSAS—Pittsburgh**

The local gas rate has been increased to 55 cents per thousand. A discount of 5 cents is allowed for prompt payment.

**KENTUCKY—Louisville**

The Louisville Gas & Electric Co., a subsidiary of Standard Gas & Electric Co., has announced an increase of 33 1/3% in steam heating rates from 33.33 cents per square foot to 44.44 cents. Customers are required to install thermo-expansion valves on their radiators and to cover all exposed pipes in order to obtain service. The increase is due to increased cost of production.

**Paris**

The Paris Gas & Electric Company has found it necessary to increase its rate 5 cents per thousand in Paris, Lexington and Mount Sterling.

**NEW YORK—Jamestown**

The Jamestown Gas Company, serving this city and vicinity, has advanced the rates recently from 80 cents to 85 cents per thousand feet.

**Shinglehouse**

The Shinglehouse Gas Company has increased its rates [illegible] cents per thousand to 50 cents, beginning [illegible].

**PENNSYLVANIA Connellsville**

[illegible] Gas Company has reported [illegible] gas to [illegible] a higher rate. Because [illegible] the company has found it necessary to [illegible] industrial [illegible] that prevent [illegible] The [illegible] cents per thousand [illegible] cents [illegible] cents [illegible]

**Johnstown**

[illegible] Gas Company is making an effort to put through a petition [illegible] a rate [illegible] cents per thousand.

# NEW FRANCHISES

It will be noted that the franchises referred to below are those specifically granted natural gas companies. Those desiring to learn of artificial gas franchises granted should refer to THE GAS INDUSTRY magazine, published at 60 Pearl Street, Buffalo, N. Y., which devotes its columns entirely to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being exclusively issued for its respective field, and each rendering 100% efficiency in the industry it covers.—Publisher's Note.

**INDIANA—Tipton**

The Indiana Gas Light Company has surrendered its franchise for supplying natural gas since the company cannot be sure of obtaining gas to take care of its customers under all conditions. The company will operate under an indeterminate permit.

**LOUISIANA—Gretna**

The Terrebonne Oil & Gas Company, at the head of which is W. B. McCormick, is offered a franchise in this city.

**NEW YORK—North Collins**

The Iroquois Natural Gas Company has made application for permission to construct and operate a gas station in this town, and to exercise the franchise granted by the town.

# ITEMS OF FINANCE

It will be noted that the companies mentioned under this head are all of them institutions drilling and distributing natural gas. Those wishing to obtain a knowledge concerning the important institutions in the artificial gas field are referred to THE GAS INDUSTRY magazine, published at 60 Pearl Street, Buffalo, N. Y., which devotes its columns exclusively to artificial gas matters. THE GAS INDUSTRY is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being specifically issued for its respective field, and each, therefore, rendering 100% efficiency in the industry it covers.—Publisher's Note.

**KENTUCKY—Louisville**

Louisville Gas & Electric Company reports for the month of July gross earnings $181,377.50, an increase of 8.8% over the same month of the preceding year; net earnings $91,236.50, an increase of 2.0%.

**NEW YORK—New York City**

The Gas & Electric Securities Company, which financed the organization of Cities Service Company, is offering $1,000,000 two-year 6% notes at 98¼ and interest to yield 6.95%. The notes are a direct obligation of the company and are secured by the deposit of $1,250,000 principal amount of mortgage bonds of seven utility properties, all of these are direct mortgages.

Earnings of Union Natural Gas Corporation for six months ended June 30, 1917, were as follows: Six months' gross, $4,828,840; net after taxes, $2,361,023; balance after dividends, $1,740,013.

**New York City**

Columbia Gas & Electric Company reports an increase of earnings for July of $136,000 over July, 1916. Net after taxes increased $52,000. For the seven months of 1917 the increase of net over the corresponding period of 1916 is given as $583,000.

**OHIO—Columbus**

The Plainfield Oil & Gas Company recently increased its capital stock from $10,000 to $100,000.

**OKLAHOMA—Muskogee**

The Muskogee Gas & Electric Company has declared the regular quarterly dividend of 1¾ per cent. on the preferred stock of the Company, payable September 15 to stockholders of record August 31.

**Oklahoma City**

The Oklahoma Gas & Electric Company has declared the regular quarterly dividend of 1¾ per cent. on the preferred capital stock of the Company, payable September 15 to stockholders of record August 31.

# INCORPORATED

It will be noted that we here specifically point to natural gas companies that have been incorporated. Those desiring to learn of artificial gas companies that have received incorporation papers should refer to THE GAS INDUSTRY magazine, published at 60 Pearl Street, Buffalo, N. Y., which devotes its columns entirely to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being specifically issued for its respective field, thus each rendering 100% efficiency in the industry it covers.—Publisher's Note.

**DELAWARE—Dover**

The Traders Oil & Gas Company has been incorporated here by M. L. Rogers, L. A. Irwin and Harry W. Davis. The new concern has a capital of $500,000.

A charter under the laws of this state has been obtained by the Harley Oil & Gas Company. Capital $500,000. Incorporators: Arthur W. Britton, Harry B. Davis and Joseph F. Curtin, all of New York.

The Texas Production Company has been chartered under the laws of this state with a capital stock of $1,000,000. Those named as incorporators are M. H. Morris, A. M. Halloran and Ferris Giles, Wilmington, Del.

**NEW YORK—Leroy**

The Penn York Gas & Oil Company, capital $1,000,000, has been incorporated here. The incorporators are: J. A. Beck, W. H. Lobaugh and S. L. Purdy.

**PENNSYLVANIA—Ford City**

A new concern has been formed here by local capitalists, known as the Armstrong Oil & Gas Company. The company has a capital stock of $50,000.

# GENERAL

[illegible] Publisher's Note

**CALIFORNIA Bakersfield**

[illegible]

**ILLINOIS Chicago**

[illegible]

**Crawford County**

[illegible]

**INDIANA—Cambridge City**

[illegible]

**Edwood**

[illegible]

**KANSAS Chanute**

[illegible]

**Hepler**

[illegible]

**KENTUCKY—Clay County**

[illegible]

**Grayson County**

[illegible]

**LOUISIANA De Soto Parish**

[illegible]

**Morehouse Parish**

[illegible]

**New Orleans**

It is reported that an offer was made to the Terrebonne Oil & Gas Company by the New Orleans Gas Company to allow the former the use of its gas mains for distribution of natural gas. The Terrebonne Oil & Gas Company has large production in the Houma field.

**Shreveport**

The twenty-six mile pipe line between this city and the gas fields and a system of collection lines which have been under construction by the Louisiana Gas & Fuel Company in Bossier Parish is nearing completion.

**NEW YORK Chittenango**

A test well being drilled here by prospectors has reached a depth of 1,500 feet. Large deposits of Medina stone and other indications encourage the drillers to hope for gas and the possibilities of oil.

**Pomfret**

The South Shore Gas Company has completed a [illegible] the Vidal Farm south of this town.

**Shinglehouse**

The Empire Gas Company of this place has finished [illegible] pumping station at Mina on the bottom [illegible] leases near the head of Potato Mile Valley a distance of about four miles. Bates and Harder of Andover N. Y. have drilled some new wells on their leases.

**OHIO Carroll County**

[illegible] Union Township [illegible] Miller operations has drilled [illegible] the upper Berea pay. The [illegible] are hauling [illegible] to market. The well is [illegible]

**Cincinnati**

[illegible] Gas & Fuel [illegible]

**Cleveland**

[illegible] Newburgh [illegible]

**Columbus**

The [illegible] Gas & Fuel [illegible]

**Gilmer County**

[illegible] Hope Natural [illegible] the Edward Kulp farm, [illegible]

**Hocking County**

In Benton Township, the Ohio Fuel Supply Company drilled a fair gas well on the Mahlon Paxton farm, in Section 7.

**Jackson County**

In Washington Township, the Ohio Fuel Supply Company drilled a light gas well in the center of the J. C. Reed farm, Section 11. Three more wells are drilling in this township, by the same company, as well as one well in Jackson Township and two in Coal Township.

**Licking County**

In Washington Township, in the Newark field, the Licking Window Glass Company has a light gas well on the John Mills farm. In Licking Township the Wehrle Stove Company test on the Vermillion farm is a light gas well. There was 26 feet of sand in this well.

**Lima**

The Lima Natural Gas Company is asking permission to raise its rate 5 cents per thousand.
R S set heads

**Muskingum County**

In Cass Township, Guthrie & Company have drilled a test on the Thomas Tuttle farm through the Clinton sand. It is a light gasser, located one-half mile northwest of the same company's test on the C. B. Bassett farm.

**Perry County**

In Thorn Township, the Logan Gas & Fuel Company drilled a gas well on the Anna A. Alspach farm and the Heisey Company completed a good well on the William Culp farm.

**Richland County**

In Monroe Township the Logan Gas & Fuel Company drilled a light gas well in No. 3 on the H. E. Applegate farm, Section 13.
recently.

**Sandusky**

The consumption of natural gas at the Libbey Glass Company shows an increase of 5,000,000 cubic feet for July over June. Two more work furnaces are under construction and when completed the increased gas consumption will be still greater.

**Union**

The Columbus Natural Gas & Fuel Company is drilling a new compressor station at this point which will be run by gas engines instead of steam-driven engines, and the Hebron plant will be discontinued upon the completion of the one at Union.

A plant for extracting gasoline from natural gas will also be constructed at Union.

**Utica**

A gasoline extracting plant is being erected here which will have a capacity sufficient to handle 2,000,000 cubic feet of gas per day.

**Wayne County**

The Ohio Fuel Supply Company drilled a light gas well in a second test on the R. M. Cockrill farm, Section 6, and made a location on the S. Wagner farm, Section 19.

In Cannan Township the Medina Gas & Fuel Company drilled a fair gas well on the E. Bowman farm, Section 1.

In Wayne Township the Ohio Fuel Supply Company's test on the northeast corner of the W. F. Johnson farm, Section 8, is a fine gas well. Vanover and others drilled a fair gas well on the center of the Mary Walton farm, Section 8.

**OKLAHOMA—Ardmore**

The Sinclair Oil Company, drilling on the Astral property in Section 29-2-3, offsetting the Lewcinda and Franklin gas well on the east, has reached the top of a heavy gas sand at 1,465 feet. The production was estimated at 50,000,000 feet.

**Augusta Pool**

The Empire Gas & Fuel Company has a 13,000,000 foot gasser in No. 23 on the Varner lease, in Section 17-28-4. The top of the gas sand was struck at 1,367 feet and the well finished up at 1,384 feet.

**Bartlesville**

Plans have been completed by the Quapaw Gas Company for important extensions of its service which will require the construction of additional pipe lines.

**Cushing**

The Monitor Oil & Gas Company recently brought in a 10,000,000 cubic foot gasser on the Katcha Fixco land, in Section 1-17-7, in the Tucker sand.

**Enid**

The Enid Electric & Gas Company has secured a contract to supply fuel gas to the Champlin Refining Company, one of the city's large industries.

The J. H. Oil & Gas Company has leased land in this territory, and is planning to begin development work in the near future.

The Enid Electric & Gas Company has secured contract to supply natural gas for the operation of three boilers of 180 horsepower each for the St. Louis & San Francisco Railway roundhouse.

The city is making plans to draw on nearby fields for its gas supply instead of as at present drawing from the Blackwell field, 64 miles distant. With the supply coming from a nearer point it will be possible for the city to get gas at about 25 cents per thousand, instead of 35 cents, as at present.

**Healdton**

The Sinclair Oil & Gas Company completed a big gas well on the Astral farm, in Section 29-2-3. The second sand was reached at a depth of 1,530 feet and it is reported that the well was pouring out 60,000,000 feet of gas a day.

The Gypsy Oil Company No. 2, Morris farm, in 29-2c-3w is shut in as a gas well at 1,870 feet. The same company No. 1 on the Morris farm is a gas well good for 40,000,000 feet.

**Hugo**

The government will sell on October 15th and 25th respectively unallotted Choctaw lands at Hugo and Wilburton

**Morrison**

The Fortuna Oil Company has a 20,000,000-foot gasser in Section 4 22 2 at a depth of 2,030 feet

**New Wilson**

The line from the Gypsy oil and gas fields to New Wilson has been completed by the Consumers Light & Power Company

**Oklahoma City**

The capital stock of the Oklahoma Gas & Electric Company has been increased from $5,000,000 to $60,000,000. The company it is said, under the Bellesby management will absorb practically all of the distributing companies in the state

The Jarrett Oil & Gas Company it is reported, has begun drilling operations

**Quinton**

The Quinton Oil & Gas Company reports six gas wells with a combined production sufficient to take care of industries established here and any who may locate here in the future

**Rogers County**

In the Inola pool E. V. Wright has a 5,000,000-foot gasser in the shallow 1,165-foot sand on a test on the Tibbles ranch in Section 21 18 16

**Sand Springs**

The Phoenix Refining Company has brought in a 2,000,000-foot gasser three miles west of this place

**Tulsa**

T. F. Sweeney's, west of Tulsa, No. 1 W. Cooper in the northwest of 21 19 11 is reported good for 5,000,000 feet of gas at 1,750 feet

**Wagoner County**

Gas fields which promise good production have been tested at Broken Arrow and Stone Bluff

**PENNSYLVANIA—Fayette County**

In the Connellsville district the City & Suburban Gas Company has completed a test on the J. B. Crandall farm. It is a fair gasser in the 5,000-foot sand

**Jefferson County**

Two wells of a million cubic feet capacity each were recently completed in the Hazen field on the Walker and Murray farms in Seneca Run. This field is located about fifteen miles North of Punxsutawney

**Oil City**

**Pittsburgh**

October 10 and 11 the annual congress of gas engineering agents will be held in this city under the auspices of the National Association. A splendid program for the business side has been prepared and the entertainment of those who attend is also in the hands of an excellent committee

The Pittsburgh & West Virginia Natural Gas Company has contracted to take 5,000,000 cubic feet of gas daily from the Victoria Oil Company. The price is said to be 6 cents per 1,000 cubic feet

**Sheffield**

John P. Marley of this city, recently brought in two good wells on the Barns lot, McGee Hollow. It is said that the two wells together have a production of 3,000,000 cubic feet per day

**Sykesville**

Test drilling has been started by the Sykesville Rubber Oil & Gas Company on leased land in this section

**Tarentum**

A good gasser has been completed by the American Gas Company on the Phile farm near Tarentum. The well records a pressure of 800 pounds per minute and rock pressure of 850 pounds

The Phillips Gas Company has completed a good well on the Metz farm, on the Bull Creek Road, about three miles from town

**Tiona**

The South Penn Oil Company will shortly complete its gasoline plant here. At this plant casinghead gas from the company's wells will be used for the making of gasoline

**Warren**

It is reported that the Pennsylvania Gas Company has completed a total of 41 new wells during the present season

Not all the 41 wells have turned out good. Fourteen of them have been abandoned because the flow of gas was not worth the casing in the wells or because they were dry holes

Of the remaining 27 two are good wells. They will produce 5,000,000 cubic feet a day. Both are located on Kinzua Creek while the others are all within 30 miles of there

**Waynesburg**

A new pumping station is to be erected by the Peoples Gas Company of Pittsburgh on property leased from W. H. R. Hoge located near this city

**TEXAS—Gainesville**

It is reported that the Lone Star Gas Company has now under construction a line from the Lone fields to Gainesville. The line will be 12 inch pipe

**WEST VIRGINIA—Braxton County**

On Right Fork of Steer Creek, Birch District the Mill Creek Oil & Gas Company drilled No. 1 on the C. R. Bourne farm into the salt sand. It is a gasser of the capacity of 5,000,000 cubic feet a day

**Clay County**

On Elk River the United Fuel Gas Company's test on the Brown-Goshorn & Swan tract is a gasser in the salt sand

**Harrison County**

In Sardis District the Hope Natural Gas Company has drilled a second test on the J. F. Whiteman farm through the 1,600-foot sand. It is a fair gasser

On Thomas Fork, Clay District, the Hope Natural Gas Company completed a test on the Watts heirs' farm. It is a gasser in the Big Injun sand. On Lamberts Run, Coal District, the Clarksburg Light & Heat Company drilled a test on the S. D. Gore farm through the fifth sand. It is a fair gasser in the 50 and 30-foot sands.

On Little Elk Creek, Eagle District, the Pittsburgh & West Virginia Gas Company drilled its test on the M. K. Baker farm into the Gordon sand. It is a fair gasser.

On Kinchlow Creek, Union District, the Reserve Gas Company has a fifth gasser on the I. S. Pauch farm.

**Jackson County**

On Elk Fork, Washington District, the United Fuel Gas Company drilled a test on the James E. Hoge farm through the Big Injun sand. It is a gasser with a capacity of two million cubic feet a day.

On Mill Creek, Washington District, the same company completed a test on the W. S. Evans farm. It is a fair gasser in the Big Injun sand.

**Lewis County**

On Freeman's Creek, Freeman's Creek District, the Hope Natural Gas Company's test on the R. A. Kemper farm is a gasser in the Gordon sand. In the same district, the Philadelphia Company completed a test on the G. M. Wooster farm and the Reserve Gas Company No. 15 on the S. D. Camden farm. Both are gassers. The last named company's test on the Z. B. Norris farm is also a gasser.

**Marion County**

On Warriors Fork, Mannington District, the United Oil & Gas Company have drilled No. 5 on the John Campbell farm into the Dunkard sand. A good gas pressure was developed.

Four miles east on Mannington, the Pittsburgh & West Virginia Gas Company has drilled an old Big Injun sand gasser on the David C. Jones farm through all sands. It is a duster, located 600 feet from a good producer on the same farm.

**Monongalia County**

On Miracle Run, Battelle District, the Philadelphia Company has drilled its test on the S. White farm to a depth of 3,400 feet. It is a light gasser in the fifth sand.

On Jakes Run, Clay District, the Philadelphia Company's test on the Maria Price farm is a gasser in the Maxon sand.

On Stewart's Run the Hope Natural Gas Company's test on the J. H. Dordray farm is a fair gasser in the fourth sand.

**Roane County**

On Little Creek, Spencer District, the United Fuel Company's test on the C. E. Hedges farm is a gasser in the Big Injun sand.

**ONTARIO—Kent County**

The Union Natural Gas Company's deep well in Dover Township, is reported to be developing some freakish habits. Repeated attempts have been made to feed the gas into the Sarnia line, but there has been trouble with the valves, due, it is thought, to the presence of moisture in the gas. It is reported that when connected up the well condenses gasoline from the gas at a rate approximating three barrels a day. The pressure is around 1,250 pounds and the flow is estimated at 5,500,000 cubic feet per day.

**Niagara Falls**

The city council has authorized the Provincial Natural Gas & Fuel Company to take steps toward restricting the use of its product for any other purpose than cooking or heating in small stoves.

The measure would preclude the use of gas in furnaces or large stoves. The reason for its passage is an alleged gas shortage.

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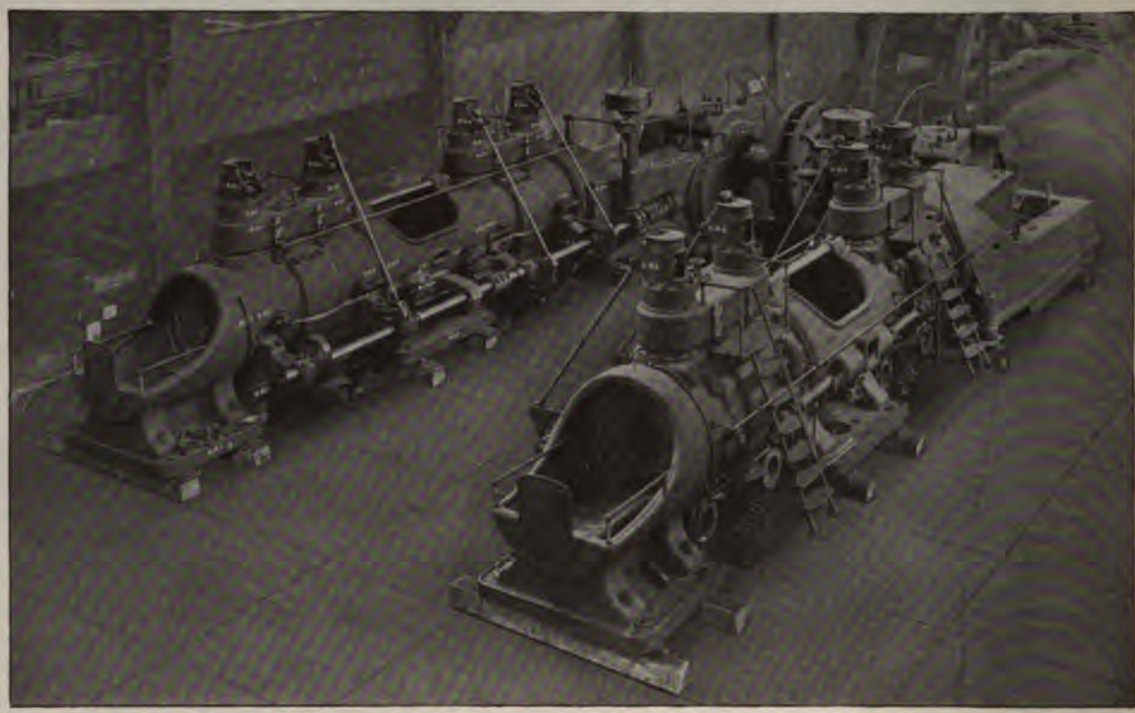

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FROM THE EDITORIAL MAIL BAG

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# MEMBERS OF THE MANUFACTURERS' SECTION NATIONAL COMMERCIAL GAS-ASSOCIATION

**N. B.:—The publishing of this list regularly in a gas field periodical, was voluntarily established by THE GAS INDUSTRY magazine, with its edition of January, 1917.**

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# NATURAL GAS MEETS NATIONAL NEED.

## A VAST INDUSTRY COMES TO THE FRONT AND SAVES THE DAY.

WERE it possible in these times to produce gasoline only at oil refineries, we should be in sore distress as a country and as individuals in this great community of the United States.

When we consider that it was but a hand's breadth since, when the recovering of gasoline from dry natural gas became an established industry, it would almost seem that we can distinguish the hand of Providence as having forestalled for us, as those behind the scenes in Prussia and Germany sought of their own attempts to prepare against the demands that would fall upon those countries when they should strike for world-domination.

It might almost seem that Providence had at the opportune moment put it into the minds of men in this country to work out the solution whereby millions of gallons of gasoline that formerly had been wasted, should be recovered from the God-given gift, natural gas, a gift nature provided to so vast an extent, but unfortunately man has criminally wasted in so large a measure.

It would be well to briefly state for the benefit of those who are not advised in these matters, that the recovery of gasoline from natural gas, contrary to the views of the misinformed is far from robbing the gas. It is a process whereby this heavier product is recovered rather than as formerly to be lost in the "drip" and otherwise in the traveling of the gas between the wells and the consumer's meter.

The percentage of depreciation in the gas after gasoline has been recovered, prior to the gas being delivered to the consumer being less than 2%, it would be as criminal to longer allow this tremendous waste as was the wanton waste of natural gas that formerly pertained and even as yet has not wholly been done away with.

Since failure to recover gasoline from natural gas, now that we have the means, would be unpardonable, the country should applaud those who have discovered the means whereby this recovery is accomplished and those who have put the discovery into practical service.

In 1915 about 65,000,000 gallons of gasoline were recovered from natural gas, while in 1916 it is estimated the recovery was 100,000,000 gallons, and this gasoline is doubled in importance, in that it can be blended with naphtha for use in automobile or similar combustion engines, and made into an acceptable motor spirit. The absorption process is quite different from the older compression process. It is absorbing the gasoline from the gas by means of oil as the absorbent, from which it is later separated. Absorption may largely supersede the compression process.

This conserving of gasoline is a means of overcoming a great former waste while, strange to say, leaving the gas with its commercial value to the consumer.

Lucius L. Bigelow

# FROM THE EDITORIAL MAIL BAG

## RECOVERING GASOLINE FROM GAS.

IN a report made by John D. Northrup of the U. S. Geological Survey, appears the following statement:

"The quantity of raw gasoline recovered from natural gas, including that produced by the compression and absorption methods, as well as that obtained by the use of vacuum pumps, and recovered as drips from gas-transmission lines, and sold in that year was 104,212,809 gallons, a gain of 38,848,144 gallons, or 59 per cent. over the output in 1915. The quantity of commercial gasoline represented by this output of raw casing-head product, though not susceptible of actual determination, was probably more than 200,000,000 gallons.

The average price received in 1916 for the unblended product at the sources of production was 14 cents a gallon and the market value of the entire output was $14,408,201, a gain of 6 cents in average unit price and of $9,257,378, or 180 per cent. in total value, compared with 1915.

The volume of natural gas from which this quantity of gasoline was recovered is estimated at more than 208,800,000,000 cubic feet, the average recovery of gasoline per thousand cubic feet by all methods being about half a gallon.

The number of plants for recovering gasoline from natural gas increased from 414 at the beginning of 1916 to 594 at the end of the year, a gain of 43 per cent., whereas the combined daily capacity of all plants increased from 232,336 to 484,448 gallons, or about 108 per cent.

The following table shows the sources of casing-head gasoline produced in the United States in 1916."

**Gasoline Extracted from Natural Gas and Sold in 1916.**

| State | No. of Plants | Quantity | Value | Average recovery of gasoline per 1,000 cu. ft. |
|---|---|---|---|---|
| Oklahoma ..... | 116 | 49,079,722 | $5,942,198 | 1.968 |
| West Virginia.. | 147 | 18,765,056 | 3,025,293 | .179 |
| California ..... | 26 | 17,158,754 | 2,293,822 | .691 |
| Pennsylvania .. | 195 | 9,714,926 | 1,726,173 | .252 |
| Ohio ..... | 53 | 2,638,571 | 470,804 | .485 |
| Illinois ..... | 32 | 2,260,288 | 262,664 | 1.688 |
| Louisiana ..... | 7 | 2,113,159 | 269,564 | 2.329 |
| Texas ..... | 4 | 1,292,811 | 201,023 | 1.363 |
| Kentucky ..... | 5 | 725,467 | 141,347 | .129 |
| Kansas ..... | 3 | 215,000 | 35,030 | .132 |
| New York.... | | | | |
| Colorado ..... | 6 | 249,055 | 40,283 | 2.422 |
| | 594 | 10,212,809 | $14,408,201 | .499 |

## IS THE NATIONAL GOVERNMENT FAMILIAR WITH CASING-HEAD GAS SITUATION?

AT a meeting held recently at Tulsa, Okla., there seemed to have been a very general feeling that the national government is not as familiar as perhaps it might be, with those especial conditions which surround the recovery and treatment of casing-head gas in the matter of gasoline production.

The producers felt it wise to present the matter in a practical form at Washington, and so planned that representation should be on hand at the national capital, not to attack the situation there in an unkindly spirit, but to make better known the conditions surrounding the situation, in order that any action taken by the government should not embarrass in the matter of departmental leases, etc.

This matter was brought about on account of the feeling that the tentative rules governing the sale of casing-head gas, which were proposed by the Commissioner of Indian Affairs, would result in harm without helping the situation.

We believe Mr. Benjamin Mossman to have a right view of the matter when expressing the condition as he saw it, namely, that the department officials are desirous of detailing fairly.

## IMPORTANCE OF WELL SUPPLIES INDUSTRY.

**The Situation Reviewed by Director Van H. Manning, of the Bureau of Mines, Department of the Interior.**

MR. MANNING recently made the following statement:

"In my opinion it is imperative that the oil-well supply industry be placed on the favored lists and permitted to manufacture sufficient supplies for the oil producers in order that our military and industrial needs for gasoline and other petroleum products be assured. The Bureau of Mines has called this situation to the attention of the Council of National Defense and it is hoped that arrangements will be made whereby adequate supplies can be assured the producer in future, but it also becomes my part to urge care on the part of the producer in the use of materials and to point out ways whereby casing and other supplies can be made to drill more wells than heretofore.

"For saving casing, I desire to call attention to a method long advocated by the engineers of this Bureau. I refer to the use of mud-laden fluid in the drilling of oil wells on which method the Bureau of Mines published

Bulletin 134, obtainable free of charge from the Washington office. By this method of well drilling, less casing is necessary and by intelligent application of the methods outlined by the Bureau, the same amount of casing can be made to supply a greater number of wells. This is a method that has long been in use in Texas, Louisiana, and California in connection with the rotary and circulator drilling system and in the wells drilled by these methods less casing is necessary than in other fields."

Mr. Manning refers only to the oil branch as affecting the gasoline situation, through casing-head gasoline recovery.

We would also direct attention to the recovery of gasoline from dry natural gas. This is spoken of as the "balance of power" in the present crisis where vast quantities of gasoline are required, far in excess of what can be produced either from oil or at the refinery, or from casing-head gas produced at the oil well.

## COMMERCIAL "SLACKERS."

WE hear the word "Slacker," on every tongue. Everybody condemns a slacker in these war days, and no one wishes to be accused of being a slacker.

In times such as these there are not simply "Slackers" of the kind that do not register, but there are "Commercial Slackers," those who make excuse of an opportunity such as the present to unduly slacken their patronage of fellow enterprises, that have been forces in the developing and maintaining of general business in the various commercial fields of the country.

There are thousands of those whose business conditions would fully warrant a nominal continuance of their commercial patronage, and who owe it to the general commercial enterprises in their respective fields, that they should continue that patronage, rather than, with a view to so-termed "hedging-a-dollar," help to block the wheels of commercial trade.

Business is merely a row of bricks set on end, when one is toppled over, the others in the row fall with it. Those concerns that withdraw their normal support from the other enterprises of a field with which they are trading, are those who may well be termed "Commercial Slackers," such are they who start a panic. The results of such an outcome are similar in misfortune to the experience of Samson, who, having broken the columns of the temple, found the structure falling about his own head, he suffering the loss of his own life, along with the lives of those he would destroy.

You have been trading with other concerns; keep it up. You are giving other concerns your patronage; don't be a "Commercial Slacker" and cut out that patronage, for if you do, those from whom you withdraw your business must of necessity withdraw from others, who in turn must withdraw their patronage from still others, and so down the line, until the whole structure is destroyed, and business is gone, with commercial panic to face. This is not a scare article; it's a warning.

The only way to keep business going is to keep money circulating, and to keep money circulating all must continue the spending of money, not in spendthrift channels, of course, but through the recognized channels of trade, and in as full volume as possible.

The "Commercial Slacker" is he who, as we have said, seeing that which he looks upon as *an opportunity* to "hedge-a-dollar," forgets right and cuts that dollar out of circulation. He immediately enters upon a project that should be condemned by all, namely, that of ruining trade and weakening commercial confidence. What we need most in business *right now* is commercial confidence and evidence, good practical evidence, of an intent on the part of gas companies and all commercial institutions to spend money. There is plenty of money in this country. Will you help to keep it circulating? It will come back to you in the cycle of trade!

Don't be a "Commercial Slacker."

## REMEDIES FOR THE PETROLEUM AND GASOLINE SITUATION.

QUITE a lengthy article bearing the title which appears at the head of this notice, was published by the Engineering and Mining Journal, August 4th, written by Frederick G. Clapp, Consulting Petroleum Engineer, whose offices are in New York City.

Aside from the notable facts concerning the matter in hand, Mr. Clapp points to a concrete situation, as follows:

"The country's annual production of petroleum is decreasing, although consumption of gasoline is increasing alarmingly. The development of gasoline substitutes will take time. Of the many remedies proposed, utilization of oil shales and the discovery of new fields will furnish more than a temporary relief. The latter can be accomplished with certain success if the petroleum geologists of the country are organized under a central bureau for the systematic examination of all possible fields in the most rapid and efficient way and with a minimum duplication of work."

## GAS AND OIL IN CORSICANA, TEXAS, FIELD.

BACK in 1895 the Texas oil industry finds its initial date. The Corsicana field, in Navarro County, produced the first successful well of the district. Of course, before that time oil had there been found, but it is stated that the annual maximum production in Texas had not up to then exceeded sixty barrels. To the honor of the Corsicana field, it continued to yield almost the total production of Texas, from 1896, until the discovery of the Beaumont field in 1901. Some of the wells in the field have been producing for 15 to 20 years.

# Rates—An Important Factor

***A Paper Which Covers the Subject Comprehensively and a Discussion Which Goes Into the Matter Thoroughly.***

BY LESLIE B. DENNING.

Delivered before the 1917 meeting of the Natural Gas Association of America.

I DO not propose to discuss "rates" in either a legal or technical sense. Papers and reports heretofore read before this association have presented the legal and engineering phases necessary to establish proper rate of return in a given rate case before a commission or other rate regulating body. The views which I present will be directed merely towards achieving one end, that is, a higher average price per thousand cubic feet of gas output and increased net earnings in the profit and loss account at the end of the year. It does not always follow that an increase in rates means an increase in net earnings.

I have in the past held the view that I did not know of a single gas man who was selling natural gas. I may now qualify that statement by saying that I know of but few who are actually selling gas, in my judgment, or perhaps it would be more accurate to say, who are using good salesmanship in disposing of their product. Salesmanship implies the creation in the mind of the purchaser of a desire to acquire your product at the price for which you are willing to part with it. Applying this definition it seems to me that I am not far wrong in the statement I have just made. It seems to me that in the majority of cases what we are doing is delivering to the customer the quantity of gas he wants, when he wants it, and at his price. Ordinarily, the price is that which the representatives of the buyers, the City Council or other legislative body has put upon it after we have made the best bargain we could.

We are called public service corporations, and are told that since our function is that of supplying a necessity of the public, to wit: light, heat and power, and further because we use public property for the purpose of laying therein our pipes and mains, we must submit to regulation by the public not only as to the price we may charge for our product, but in the general conduct of our business. In theory this proposition may be sound although to my mind there is no more reason for calling a natural gas company a public service corporation than one who supplies bread, milk, or meat to the people. In practice, unfortunately too often the term public service is used synonymously with public slavery. Even the servant is entitled to a comfortable and convenient place to work, to fair wages and an occasional Saturday afternoon off, while the public service corporation must be constantly on the job without rest, and with no excuse for failure to perform, and quite often without proper compensation for the service rendered.

Another factor which must be considered is the manifest disinclination of regulating bodies to grant increases in the rates of public service corporations, even upon good showing that such increases are absolutely necessary to meet advancing costs of labor and materials.

The problem of increasing the rates is manifestly, first, one of the capabilities and possibilities of the individual company under consideration. To determine these, the first step is a careful analysis of the company's business and prospects. A company with a large supply of gas would be in a vastly better position than one with a limited supply, given equal market opportunities, so that after all the first question is how much gas have we got to sell. The next questions are to whom, for what purpose and for what price will we sell it.

All gas companies make a point of seeking what is ordinarily called domestic business, that is lighting, cooking, heating and household purposes, and this business is supplied at the highest price at a fixed rate in force in the community, with here and there a sliding scale based upon quantity consumed.

Ordinarily this price is about one-third, sometimes less, of what the customer would have to pay for a commodity rendering equivalent service. To my mind this is an entirely wrong situation. I see no reason why the consumer of natural gas should not pay something near the value of the service considered in its relation to competing commodities rendering equivalent service.

We are met with the argument that the people should have the benefit of the resources of nature. I have even heard the argument that nature placed the gas in the ground, and that as man did not create it, therefore he who takes it from the ground and conveys it to market should only be paid the cost of the service he renders. I cannot see this argument possesses any merit. When the farmer plants wheat he afterwards reaps that which nature creates and ripens into a finished product, but so far I have not heard the argu-

ment advanced that the farmer should sell his wheat at cost plus six per cent. I firmly believe we should strive to obtain that price for our product that it is really worth, and I believe such a policy will redound not only to the benefit of the companies in the business but to the direct benefit of the users of the product, because it will decrease the average consumption per meter, and will prolong the time the public may enjoy the benefits of natural gas.

That the natural gas producer must in the future secure a higher average price for his product is a proposition which cannot be disputed. The constantly increasing cost of labor and materials, the diminishing supply of the product itself, the necessity of going farther away from the market to maintain a supply of gas, makes it absolutely imperative that the average price per thousand be increased if the purchaser is to keep in busisess and the public is to have the benefit of his efforts. It is not an easy matter to secure an advance in the price of the product where the public have been educated to expect and demand a low price, particularly where the buyer has and exercises the right to fix the price he will pay. In almost every line of private endeavor the seller of the product makes the price he will sell for it. In the public utility field the buyers say what price they will pay for it, consequently it becomes absolutely necessary to convince the buyer who is fixing the price, either that the product is worth more money or that he will have to pay the price or do without it.

How to accomplish this with the least friction and still retain the good will of the public is the problem. Several years experience with commission control has not made me enthusiastic over the results to be obtained from the commissions when seeking rate increases. The expense of preparation for the necessary hearings is usually very great, and the delays are usually such that it may well be that the net result will not be found to be very advantageous to the parties concerned. The engineer for one of the State Commissions recently made the statement that "It is an axiom that it is almost as expensive to win a rate case as to lose one." I have in mind one rate case wherein I believe the expense to the city, to the gas company, and the tax payers of the state has not been less than $25,000, and the company is not one of the large companies at that. This case has been pending for over two years and the decision has not yet been given out.

It is quite possible for a company to have a rate case forced upon it by one of the smaller communities, the resulting expense of which would more than exceed the total revenues derived from the town for several years. I do not say this in criticism of any commission or of any commission control, as I have always supported the idea of commission regulation: I merely desire to point out that in my judgment it is better to dispose of rate questions directly in the communities where they arise. I believe that we who have natural gas to sell have not given the attention that we should have to proper selling methods and the education of the public generally, to the benefits the public receives from natural gas and the value thereof.

I estimate that at least ninety-five per cent of the gas sold for domestic purposes is sold to, used by, and paid for by women. The average man is perfectly content to turn over to the woman of the household full control and responsibility of the domestic establishment. Whether or not the women vote in any given community, they can and do wield an enormous influence in that community in regard to any economic question that affects their comfort and well-being. If any gas man doubts the statement that the great majority of his customers are women, let him take his stand any time at the cashier's window when gas bills are being paid, and I think he will very soon be convinced. The women know more about the comfort and convenience of gas in the house than men do. I have had women say to me, "Why, I would give up my telephone, my electric lights, and almost anything I have in the house before I would do without gas service." Time and again I have had customers say, "I would be willing to pay almost anything to keep natural gas."

A striking illustration of the interest women take in natural gas came under my observation some time since. A certain company had been forced into a rate controversy with the political authorities whose sole aim and object, admittedly, was to compel a reduction in price, regardless of the effect such reduction might have on the service. The company planned and carried into effect an advertising campaign using the daily papers for the purpose. The campaign was based upon the idea that the women would finally control the whole situation. The weather was warm and but little gas was being used. In order to get the women interested and bring the matter to their attention, the company published an advertisement offering a prize of five dollars in gold to each of the first five women who would send to the company's office a complete set of twelve consecutive months paid gas bills. It was estimated that not over fifty replies would be received, the real idea in the advertisement being to get the women to thinking and talking natural gas. The response was amazing. Within two hours after the advertisement appeared, the first five complete sets of paid bills were in the company's office. Altogether five hundred replies were received.

Fifteen years' experience and contact with the gas using public has taught me that the best asset a public utility company can have is the good will of its customers. In fact its value can hardly be estimated at too high a figure. Good will can only be secured and maintained by constant good service and fair dealing.

I have dwelt at some length on this phase because I want to call attention to the fact that the good will of the community and the belief of our customers in our honesty and fair dealing will very often be the deciding factor in enabling us to settle rate controversies right where they spring up, without the ex-

pense and delays incident to appeals to commissions or court proceedings.

The domestic load is usually about six times as great in cold weather as in the summer. This compels the company to maintain line and compressor capacity and gas supply for a peak load six times as great as the low domestic load. The result is that there is an excess of line and compressor capacity which ordinarily cannot be used in the summer; also an excess gas supply. If the domestic consumer could be educated to the point of paying a price sufficiently high to enable the company to maintain this excess as a reserve for future use the problem would be simplified somewhat. Unfortunately we have not reached this ideal condition. Every company is compelled to tackle the problem of how to dispose of this summer excess gas at the best price. My solution is, get on industrial consumers at a price as near the equivalent of competing fuels as can be obtained. In securing this business we will have to radically change our methods. The day is past when we can take a piece of pipe with little holes in it, call it a burner, and put it under a boiler and supply gas through it. Competitive conditions not only demand a change in the methods of installation and appliances used, but also in the character of the men who solicit and have charge of this class of business. Gone also is the day of the pipe fitters and plumbers in the handling of high grade installations. The men we send after the business should be, so far as possible engineers trained in the laboratory, with at least a working knowledge of the laws of combustion; men who are able to go into an industrial plant and work out appliances and systems of applying natural gas in efficient ways to the problems of that particular industry. The companies who have recognized this condition and have acted accordingly are the ones who today are securing the highest prices for industrial gas. A manufacturer recently made the statement in my presence that he figured the cost of the gas from his oil producer plant was equal to sixty-cent natural gas. Manifestly if industrial plants can and do pay forty and fifty cents per thousand for artificial gas with a B. t. u. content of 550, why should they not at least pay that, or more, for natural gas with a B. t. u. content almost double that of artificial gas?

As I said above, the problem of how to dispose of the product at the highest price must be solved by each company, due consideration being given to individual conditions, such as amount of supply, character and extent of market, etc. No hard and fast rule can be laid down to apply to all cases. Generally speaking I would say, first, let us study the possibilities of our own business carefully and in the light of scientific developments; second, educate ourselves to think of our business as a business selling a service rather than a commodity; third, let us educate the public as to the *value* of natural gas service; fourth, let us go after the industrial business using the best methods that the ingenuity and trained brains of the gas industry can devise

DISCUSSION.

Mr. John H. Maxon: Mr. President and Gentlemen: Mr. Denning insists that rates and charges should be established that will produce from the natural gas industry a higher average price per thousand feet of gas delivered, and greater net earnings; and no fair-minded man who is familiar with the present status of the natural gas industry will refuse to support this proposition.

The true value of natural gas service may be said to be that amount which the user of the gas would have to pay for another service or commodity, which could produce for him the same results which the natural gas he uses does produce. This being true, then it may be said, that no persons, firms or corporations in the United States are being more poorly or inadequately compensated for the article, service, or commodity furnished to the public than are the natural gas companies.

That an increase in rates (if we take this to mean an increase on the "straight rate" basis of the price per thousand feet) is not always followed by an increased net earning is certain.

What is needed, is an adjustment of rates and charges that will place the present unprofitable customer in the profit-producing class; and the careful analysis of the sales of any gas utility will show that the unprofitable customers' names occupy the major number of the lines on our ledgers.

In every gas distribution operation, there occurs a certain amount of operating expense that does not vary with the amount of gas being used. The cost of maintaining offices, clerical work, reading the meters and delivering the bills are among the items. A total of these charges, divided by the number of customers will show the "consumer cost," which is outside of the cost or value of whatever gas is delivered; and outside, also, of return and depreciation to the property involved in the delivering of the gas.

Analysis of operating costs of different gas utilities shows that the "consumer cost" amounts to a very large sum, ranging anywhere from $6.00 to $12.00 per annum per consumer. Probably no more fair or equitable method of adjusting rates and charges for natural gas service could be found than to make a fixed monthly charge against every consumer, outside of, and in addition to the charge for the gas furnished; and, of course, the proper amount of such charge would vary in different operations.

This method of charge to cover "consumer cost" has met with strong opposition, but, I believe, the plan should be earnestly advocated by the gas interests, as it can easily be shown to be entirely justifiable, and is perhaps preferable to the plan of obtaining the same results by increasing the price per thousand on the initial deliveries of gas, or, by the use of a "minimum" charge, as the "consumer charge" in itself provides a minimum charge. With proper explanation, regulatory bodies may be convinced of the merit of this plan, and I am confident that the public mind will approve after full and complete explanation has been given through judicious publicity.

For the purpose of securing fair and equitable compensation the present price per thousand cubic feet for natural gas need not be materially changed, provided

proper charges covering "consumer cost," readiness to serve expense, and demand charges covering the cost of providing for variable demand, are added to the present schedules of rates. Considering the rate subject I think it would be very well if rates which might be termed prohibitive rates and used for the purpose of discouraging any class of service that brings break-down in our service or rates that will enable the companies to provide facilities to carry peak-load business might be given sober and deliberate thought in an earnest effort to work out a proper solution of this complex situation.

I believe that the natural gas interests should unite on some plan whereby a complete survey of the territory where natural gas is now delivered should be made, in order to determine what prices are competitive with other service or commodity that could be used to do the work now accomplished by natural gas; and that a strong cooperative effort should be made to convince the public that in its interest, and the interest of true conservation of a great natural resource, much higher charges for natural gas service are desirable.

As Mr. Denning points out, natural gas has always been marketed without attaching a value to the gas at its source. This also has been largely true of the marketing of coal, but recently our brethren in the coal business have begun to attach great value to coal at its source, and are making up for lost oportunities by leaps and bounds.

In concluding my remarks on "rates" let me say, that the natural gas man, whenever he thinks on this subject, should have the following incontrovertible fact fixed firmly in his mind: "No man knows how to manufacture a commercially practical gas that is, foot for foot, much more than one-half as valuable as natural gas." (Applause.)

President Guffey: We would like to hear from Mr. John C. Bartlett, of the Oklahoma Natural Gas Company.

Mr. John C. Bartlett: Mr. President and Gentlemen of the Convention: When the suggestion was made that I make a few remarks by way of discussion on this paper, I had two thoughts in my mind, one was why they asked me, and the other was what I would say after I got up.

Now, Mr. Denning's paper has brought up for discussion a subject that is of great interest to us all. Gas men generally have been waiting in the gas rate trenches for a god many years, hoping for some decisive and concerted action with reference to natural gas rates. There have been volumes written and many hours spent in discussing this all-important subject. It is very pleasing to we western gas men to see this big, splendid gas association making some progress in the solution of this perplexing problem. I believe more progress has been made in the last two years on this subject than in the whole twenty years preceding. To my mind the reason for this is the business-like way in which you are going at it. It is simply the application of science to a business problem. It is a big problem in our business. There is no question in my mind but what this subject is the paramount subject of the entire natural gas business today.

Mr. Denning's paper is brief,—possibly because he was in the habit of writing "briefs." When we begin to talk about rates at a convention we are not only talking to the gas men, but we are talking to our consumers as well, and we are talking to our stockholders and we are talking to the utility commissioners of all the states where natural gas is sold. It goes into the record and is spread broadcast. Now, some of us who may be fortunate enough to be making a little money at our present rates, don't want to say much about rates. Others who are not breaking even are anxious to have the subject brought up all the time and want to be discussing it with everybody to find out what they can do to remedy their condition. Now, we all agree that we ought to have higher rates. Why do we want higher rates? What is it going to get us? Higher rates does what? It conserves gas. We must conserve the gas if we are going to stay in the business. Higher rates bring our stockholders a little better return. Probably all the interest that our stockholders have got in the natural business is the dividend check they get every month or three months. Their ideas do not go much beyond that. In fact, I do not know whether there are very many large stockholders belonging to this association or not. They ought to belong. They are the owners of the whole properties. They ought to be here helping out in the discussion and in the solution of these vital questions.

Now the conservation theory is the most vital to the gas man. Without that we will all come to grief sooner or later. This subject is a mighty broad subject. You can write volumes on it; you can talk all around and come back right where you started from and you find that you have not said much.

One difficulty that comes to my mind is the fact that there are so many varied rates all over the country. The people do not understand that. One company may make money at twenty-five cents a thousand and another company may lose money at thirty-five cents a thousand. They do not know what the difference is. These commissioners get all this information that comes through this convention; they get all the circular letters that the gas people send out; they get all the printed statements year after year; they compare them, and I do not blame them for some of the opinions that they make. It is a big proposition; it is a complex proposition. You can talk for a week and you have only just begun to say something about rates. Now we all concede that they are too low. We all agree on that. I do not think anybody will take issue with me on that point. How did they happen to get so low? What did we do? Whose fault is it? It is not the people's fault that they are low, although to some degree it may be said that it is possibly their fault to some extent that they are continued as low as they are. They were a little better traders than we were. That is all.

I call to mind a little thing that occurred years ago. Of course, we all know when we started in this gas business it was a flat rate proposition. We started to sell something without measuring it. We let them have all they wanted as long as they gave us a dollar per stove. That is why we are here today. That is why we are fighting this rate proposition. We did not have any way to satisfactorily measure it in those days. We let them have all they wanted; burn it open doors and open

windows, and we did not care what they did with it; they paid us a dollar a stove in the summer time and some paid us two dollars in the winter time. That illustrates the ridiculousness of the proposition at the start. Eighteen dollars per year for gas to cook with for a whole family for a year.

What I was going to say was to refer to a little personal experience which occurred to me when I first started in the business some nineteen or twenty years ago. It was in a little town. Of course, you will all recall who were engaged in the gas business in those early days that when it started in its infancy it started in the smaller towns first. We did not get into these big cities until we got more gas. There was more gas then than we have now, possibly, that is, compared to the demand or the consumption. People then didn't know what they had. The whole proposition was crude, and they didn't know what to charge and so they started in on this flat rate proposition. A little incident comes to my mind in the little town where I worked in the gas business. Wood was very cheap. Farmers brought it into the little village. It didn't cost much and the merchants would trade groceries or trade a bottle of medicine or dry goods for a load of wood. It didn't cost them much, and when gas came in and they started to pay a real dollar per month or two dollars per month they stopped to consider whether it was not more expensive than the mode of fuel they would be able to secure. Their bills ran up to eighteen or twenty dollars a year. Just think of it! They commenced to dicker and commenced to trade with the early gas men right from the start. Women began to trade. The author of this paper speaks about women. They came to the gas office and said, "I can not afford to pay a dollar for this gas for a whole month. I can't afford to pay the increased price. It has been costing us fifty cents for our fuel. Of course, I like the gas and I am willing to pay a little more for it, but my husband is a druggist." That was the case in the particular instance I am bringing to mind. "And he makes liniment and furniture polish at two or three cents a bottle and when the farmer comes in he trades this for wood and our fuel bill don't cost us only a few dollars a year." Once in a while they slipped in a bottle of Peruna. In those days they were easy and they were anxious for business, and they had more gas than they knew what to do with, and they let that lady get by at fifty cents per month just to keep her still. She talked about it. Then similar arrangements had to be made with other customers. Then as soon as the gas in the local field began to go down a little—I don't know the history of this meter business, but the meter came in vogue and they started to sell by the meters and when they began to figure at the rate per thousand cubic feet based against the flat rate proposition, they had to make the rate per thousand pretty low to keep the public off the back of their neck. That is my idea of why we got started on this low price basis. That is just a little reminiscence. It does not do any good now so far as this subject is concerned except to call our minds back to the way in which this matter got started wrong. However, I am taking up a lot of time without getting anywhere, and that is about what I expected to do when I came up here. They got these meter rates in so low that in a very short time they were required to figure on a method for getting them up higher, and we have been figuring along that line now for twenty years, and we will keep on figuring until the game is over. We boosted the rates a couple of cents in Bradford a few years ago. I remember the first experience I ever had in raising rates. We raised the rates, I think, from twenty-two to twenty-four cents or something like that. It was a two cent raise, as I remember. We did not have the mayor and the council after us then. They were not jumping on these corporations at that time for political effect. After the rate was boosted two cents for three or four months we would stand at the counter and talk to these people why they ought to pay a little more money for this same product they had been getting cheaper. After a while we talked them out of it and discouraged them in continuing their opposition and the rest went along all right. We did that so that no councilman could jump into court and ask for a receiver or ask for an injunction or anything of that kind. It was not long, however, until they got into that field. Then we had the trouble with the local municipal organization. Every time we attempted to raise the rate a cent or two cents a thousand we were called upon the carpet and then we had this same subject to hash over back and forth. Their minds were not open. Possibly ours were not open. We knew or we felt that on account of the uncertainty of the business we ought to have more money. Depreciation of property is more or less of an estimate and, of course, we know nothing about how long gas is going to last. There is absolutely no fixed rule in the matter of gas and gas supplies. There is no fixed rule as to the deterioration of pipe. In fact, the whole game is blind from start to finish. We will never know where we are coming out until we do get out. That is my idea of the gas business.

Now the next idea was the creation of public utility commissions which has occurred within the past few years. I do not know and I have not figured out in my own mind whether we are any better off with commissions now than we were dealing with the individual or local municipal authorities. It is a question. As a lot of commissioners will probably read these remarks, I will "soft pedal" a little bit. There are a lot of good fellows on these commissions, and they have taken hold of this subject and they have gone into it very deeply. That is particularly true of Oklahoma. The difficulty with the commission proposition is just the same as it is with local organizations. About the time a man begins to learn a little bit about the gas business he is out of office and another man comes in, and we have got to do it all over again. Then, of course, we always have before us the fact that everybody wants to get everything just as cheap as they can. That is a proposition that we have always had and will always have so long as human nature remains the same.

Then another proposition is the fact that the people generally and particularly our customers, in the past at least, have been a little more or less suspicious of public

service corporations and, indeed, of all corporations in general. I will not attempt to say anything about why that is; but it has been so in the past. However, I am glad to say that it is getting better. The people are looking into these propositions as they come up more and more and it makes no difference whether it is the gas business or what it is. They do not want to be talking on a subject unless they know something about it. They are not so crazy as I am (laughter and applause).

There are one or two other matters that I had in mind, but I do not want to take up so much time. In fact, I am very anxious to get away from here myself. This rate proposition and conservation proposition is a great problem in the gas business. I have had gas men say to me, "Bartlett, what are your rates out in Oklahoma?" Well, the average domestic rate is twenty-five cents, and we sell boiler service down to ten cents. Those are the regular rates, although there are some lower than that. They say to me, "You fellows must be crazy. What is the matter with you?" Well, now probably we are. No question about it, I guess. But here is the proposition, a gas company may make a good earning at twenty-five cents, as I said before, whereas another gas company will lose at a higher price, so that there is no way we can make a fixed rate for the commodity because the whole proposition is different. There are so many different angles; so many varying conditions; so much hazard as to supply; so great uncertainty as to demand, that it is a problem about which there can be no fixed standard. You have to charge in each locality with reference to existing conditions in that locality. You have to figure it out separately. But it seems to me we ought to work out some fundamental rule to go by so that we may be able to work together. There ought to be a committee—a standing committee of this organization to whom we could go when we get into a rate trouble—and we would be there all the time, of course—to get advice and try to work out a solution of this problem along similar lines and by similar methods. If there were a concentration of all our energies maybe we would get somewhere.

Now in Oklahoma we have the problem that Mr. Diescher spoke about this morning, the waste of gas. The same thing obtained in these fields in the east years ago, but never as bad as it has gotten in Oklahoma. The conditions out there were different. There are so many sands; so many operators. Ten or twelve thousand operators whereas a handful back here. The majority of them do not know anything about the gas business when they start drilling. They drill right through gas sands and let the gas blow. They want to get rid of it. We have had the proposition on our hands of trying to sell something to the people that the producers in the field were blowing away. We had to stop the waste first before we could talk about rates and prices. I am glad to be able to say we have cut that waste down. We have had the co-operation of the state authorities, and we have finally gotten the Federal Government to come in and assist us in the work of conservation. A great percentage of the waste has been stopped. We will be in the gas business a good deal longer out there on that account. I guess, Mr. President, I will not take any more of your time this afternoon (applause).

President Guffey: We would like to hear from Mr. H. J. Hoover, Commercial Manager, Gas Department, The Union Gas & Electric Company, Cincinnati, Ohio, on this all important question.

Mr. H. J. Hoover: Mr. President, and gentlemen: Mr. Maxon covered several points in his discussion on the rate subject which I had in mind, but which are unnecessary to repeat because they were very well presented by him.

There is one thought that has occurred to my mind which it might be well to consider at this time. Last winter we were probably all confronted with the solution of the complexing problem of an abnormal demand for gas, due to an abnormal condition. That abnormal condition may for the future become a normal condition of demand. I do not believe there has ever been any well-defined decision by a public utility commission or a rate making body as to how far the responsibility of the distributing company extends as to the question of adequate service for its patrons. Going back to the artificial days, the prime uses of gas were for lighting and cooking and some minor uses, such as water heating and, perhaps, incidental heating. Natural gas has been so cheap and has been so good that people are demanding it for the displacement of other fuels, and they have made a demand for it beyond the capacities largely of the distribution companies' plants, and these companies are brought up to the point of making additional capital investment to supply more gas. It seems to me that the question might well be considered of putting up to rate making bodies the determination of the function of a distributing company and how far its responsibility may go. If a company which is now given the privilege of selling gas under certain conditions, when it has it to sell, at less than its franchise rates, it seems by the same method of reasoning that it might be privileged to sell gas above its franchise rates under certain abnormal conditions. In other words, if the average consumption for what are considered primary uses of gas could be fixed we will say at eight thousand or ten thousand cubic feet, or whatever the rate making bodies upon proper investigation would find it would cover, then to give to the gas companies the privilege during the peak months to sell gas if they have it to sell, or if they are justified in making the capital investment to supply it, at a substantially higher rate than the franchise rate in supplying the average consumer. That might be somewhat radical, but if it can be established it would be a move in the right direction. It was somewhat recognized in Ohio last year by the commission during the gas shortage, that it had the right under its powers and for the purpose of taking care of a large majority of the public to discontinue the use of gas in large quantities to certain consumers. In our city they cut it down to the point of even asking the users of gas of one hundred thousand feet per month to get off the lines. If the Commission has that power,—I doubt if it has ever been presented to the courts for settlement, but if it has that discre-

tionary power, it seems to me it is reasonable to suppose it may fix a point in our business by which you are required to give adequate service three hundred and sixty-five days in the year, but it will not mean that you will have to make additional investment to take care of the peak load of perhaps a few days or a few weeks. But if you are in a position to do it and can get contracts to justify you in doing it, it seems to me it should be the privilege of the gas company to do it. Now that is just a thought, but it has this advantage, that it would be popular with the people. If you can reasonably assure nine of your customers that they will have adequate service three hundred and sixty-five days in the year, if you can fix a price, even though it is higher than the franchise price to the tenth consumer that will prevent the interfering with the service of the nine consumers, it will certainly be popular with the people and after all, rate making bodies will have to have the support of the people selling gas. I have discussed this with a few gas men, and it has met with their approbation. I believe it may be worked out. I am giving it to you for what it is worth. It is somewhat radical. Mr. Maxon has covered the other points and that is all I wish to say (applause)

President Guffey: We would like to hear from Mr. Stone of The Ashtabula Gas Company, if he is present.

Mr. Frederick W. Stone: Mr. President and gentlemen: The paper has been pretty well covered by the gentlemen who have preceded me, and they have taken all the "thunder" that I have, but there are one or two features that have not been touched upon—

Voices: Louder, please, so we can hear you.

Mr. Frederick W. Stone: Did somebody say louder?

Voices: Yes, yes.

Mr. Frederick W. Stone: All right. I was saying that one or two thoughts have occurred to me which have not been mentioned. One was that the public, of course, fixes the price. That is not a new thought, but in connection with it we have been so anxious to have the price fixed in a number of cases that we have agreed to fix the price for a longer term of years than seems advisable under present conditions. The ordinary term of years for a price fixing ordinance in Ohio is ten years, but it seems under existing conditions it would be just as well if the gas companies could work out a scheme by which they would agree to a price fixing ordinance for a period of five years. In five years you will probably need a much higher price than you are getting now and you will probably get it.

Another thought that occurred to me, I might go even further than that and say I really believe as far as natural gas companies are concerned that they are just as well off if they did not have any contract at all with a municipality. If they have no franchise, if they are able to say "if you want the gas, all right; but if you don't want the gas at a good price and for such a price as the company regards as an adequate price, then we will just suspend business with you and get out. We would like to do business with you, but we do not want to do it at too low a price." That is a pretty radical view to take of the situation; but I really believe it might be a solution of some of the difficulties we are laboring under at the present time. Mr. Denning has said that he thought one solution of the price problem was to sell gas for industrial purposes. I agree with him that that is one of the solutions, but when you come to selling gas for a low price for, we will say boiler purposes, it always seemed to me it was almost like feeding hot-house lettuce to a cow. That is about the size of it. You are wasting mighty good material in a very poor way and the better way would be to work out some sort of scheme whereby that gas could be conserved for the purpose for which it is best adapted. The purpose for which it is best adapted and the purpose for which the people want it is undoubtedly for domestic consumption.

Mr. Hoover brought out a point along the same line that I want to refer to briefly. The point has been pretty well established that distributing companies are entitled to a readiness to serve charge because they have the meter and they have the men and they have the clerical force and all that sort of thing which they keep in readiness to serve the consumer regardless of the quantity of gas he uses. I will go a step further than that; while I am a distribution man and have nothing to do with the production end of the business, yet, on the other hand, I am rather inclined to think that the producing company is entitled to a certain extent to a readiness to serve charge. If they are expected to handle the peak load and to maintain a ten inch line when an eight inch line would be just as well under normal conditions, they are entitled to a readiness to serve charge to the consumer of the gas. It seems to me if we could inaugurate some plan of that kind along that line, we would not need to sell gas for industrial purposes at such ridiculously low prices. We will be able to get enough revenue from our domestic consumption so as to be able to serve them all the time.

The public fixes the price and in order to get a higher price from the public, you have to educate them to the higher price. You have to tell them something about what gas is worth in relation to other fuels. Someone said here this morning that they were very much surprised at the low prices at which natural gas men were willing to sell their product. There is no reason at all why we should sell natural gas for thirty or thirty-five or forty cents a thousand where artificial gas companies are getting from a dollar to a dollar and a half a thousand for exactly the same thing. The trouble is we have not had the nerve to ask what our commodity is worth. We have not advertised it enough. We have not told the people its advantages. There are two ways of educating the people. One is to educate them to the advantages and economies to be derived from its use and the other way is to educate them in regard to the cost and the hazards incident to the natural gas business. We have not done either one. A woman will go to the grocery store for oat meal or sugar or something of that kind and she will usually pay a much higher price for a package of the article than for the same goods in bulk, and she will usually do it simply because she believes the package goods are not more economical, but more convenient to handle and possibly a little cleaner and maybe she thinks she will get a little better article, or she will telephone the grocer and have him deliver the goods to

her home and pay a good stiff price, whereas if she would take her market basket and go down to market, she could buy the same article much cheaper, but she takes into consideration only the matter of convenience and will not go down to market where she could buy the article to the best advantage, but telephones to the grocery and gets the goods in that way because it is more convenient to her and she wants to save time and trouble. She has been educated that way. We have not educated the women that way in the use of the natural gas, and half of them do not realize because they have not been told how convenient it is; how clean it is; how good natural gas is as domestic fuel.

Another feature of the business I desire to mention at this time. When you go before councilmen or before a commission or anything like that, when it comes to talking about the price of natural gas you have to talk figures and you have to have the figures before you in order to do it accurately. You know just as well as I do that two-thirds of the natural gas men do not know how much their business costs them. They do not know how much it costs to produce the natural gas. They do not know how much it costs to transport it. They do not know how much it costs to distribute it. They never make any analysis of their accounts. They have never taken into consideration all the factors which enter into the costs which go to make up the price of natural gas net to the distributor. They never take into consideration the intangible factor which goes to add to the cost of the article to the distributor. They do not take consideration the overheads or the things that do not appear on the surface. As for example the matter of depreciation, original investment and various expenses constituting important intangible factors in figuring costs. They are the thigs that really cost and which we ought to work out in a systematic way so that when we are called upon to appear before rate making bodies we will have the accurate figures at hand showing total costs. I do not know why it is, but there is no business where we put the "soft pedal" on figures as we do in the natural gas business. For example, take the matter of leakage. Ask the ordinary gas man if he suffers from leakage. He says, yes, he has a little leakage, of course, but not very much. Well, what is it? He does not exactly know and he will hedge and fuss around. Go to the manager who operates many of our plants and ask him. He does not know very much about it. So that if you go to the manager for these facts you are not able to get very much out of him. I am just using that argument by way of illustration. We do not know what our leakage is. You cannot state what the average figure for it is and consequently when you go to talk to rate making bodies about the cost of gas and you say to them that gas costs thirty cents with a ten per cent leakage, making the actual cost at the meter thirty-three cents, you have no figures to back up your statement. It seems to me we ought to analyze our costs and really know just how we are doing business. I had another point in that connection, but it has slipped my mind just now. However, I guess I have said enough anyway. I thank you very much (applause).

President Guffey: We would like to hear from Mr. Miles B. Layton, Assistant Manager, Manufacturers Light and Heat Company of Pittsburgh, on this important subject.

Mr. Miles B. Layton: Mr. President and gentlemen: On Saturday morning I found on my desk one of those persuasive letters from our friend, Mr. Holbrook, saying that enclosed was a printed copy of the paper written by our friend, Mr. Denning, and asking me to discuss it today. Not being able to get in touch with Mr. Denning, on my arrival here this morning I found that he was ill. Otherwise I might have had him change the title of this very interesting article which he has prepared for us and have had it read something like this, and I feel confident if I had talked with him he would have heartily agreed with me: "Suggestions For Natural Gas Salesmen Which Will Bring About a Fair Rate and a Satisfied Consumer."

Mr. Leslie B. Denning: I heartily endorse that. That is the substance of the whole article.

Mr. Miles B. Layton: I have had a varied experience in the sale of natural gas covering quite a number of years. It is an easy matter for a fellow to stand up here and tell you what you ought to do, but it is an entirely different proposition to do it yourself and get results. But at the same time, there is this one feature that has been wrong and has been staring us in the face all the years in which we have been selling natural gas. Rates had no conception of the value of natural gas when we started out. It had been blowing in the air free for years and people passed it by as of no value. We discovered one day we could use it and it would furnish heat by its use. We then applied it. We started to use it. We had been using wood and coal. Wood in the early days was plentiful and coal was much cheaper than it is now. You all remember when we cut our wood with the little buck saw and didn't think much about the cost of our fuel, for in those days it was a very inconsiderable item of expense. We said, "Well, we will just substitute gas." Our wages were not very high and the value of replacing it with a fuel which cost no labor was very small and the result was that we started in on the wrong basis, never taking into consideration for one moment the actual value of natural gas for heating purposes and manufacturing purposes. Now we have suffered for the sins of our forefathers all these years. We have had to come back in a begging attitude all the time. We have failed to say to the consumer that it is costing us more money to get it; the fields are becoming depleted. We all know this to be the fact. The fellow who is successful in getting an increased rate for gas from the consumer is the one who is in personal touch with the manufacturer or with the domestic consumer, even though it would be a lady. They are not the only ones who are willing to pay a fair price for natural gas. The moment that you can talk to them and tell them of the actual necessities; the conditions under which we are working; the failing supply; the increased demand; the extension of pipe lines running over long distances and everything of that kind that comes in contact with it, that moment you have those consumers agreeing to pay that increased price. Now your inability to show him and

show him conclusively that you are honest in what you are saying to him, that moment you will fail to get him willingly to concede you are entitled to a higher price; but if you are able to tell him that there is this necessity; that you should receive more money for your produce, from the moment that you can convince him that is true, then he is willing to pay a higher price for the conveniences and advantages he derives from the article, you have for sale. That has been my experience for years. We only fail when we are endeavoring to get an increased price for natural gas; when we suddenly spring upon an unsuspecting public, without giving them any idea of what is coming, like a stroke of lightning out of a clear sky, the unheralded announcement that "tomorrow morning," or "commencing with the first day of July, the rate for natural gas will be raised to thirty cents a thousand." He immediately becomes "peeved". That is good English because it is a word we should use every day. He immediately becomes peeved at the thought that you would say to him arbitrarily that that was the price he will have to pay. Had we taken him into our confidence and said to him, "Now, we are thinking of raising our price on natural gas the first of July for the reason of the increased cost and the diminished supply," and telling him frankly and freely all the other factors that enter into it, he immediately feels that that is something that he is going to be required to acquiesce in from the standpoint of even justice, and he commences to think. He analyzes the situation with the result that when he finishes analyzing the situation, he is willing to pay the price. Without trespassing too much on your time, I will give you a few of my own experiences. I hope they may be of help to you. I am not brushing off my own medals when I am telling you of these instances, but I am just telling you the plain facts because these are features of the business that each of you must face and must come in contact with, and probably many of you have come in contact with more frequently than I. I have been brushing up on the rate question a good deal of late and endeavoring to boost prices for the most wonderful product that Nature or the Almighty has ever given to the human family and that is natural gas. In my researches I have found this to be true, and I refer to a celebrated case which went on for a number of years. There was a complaint from a consumer who had been called upon and who was notified to pay an increase in rate. It ran along for some time—and here is just a little history which shows how important it is to come in personal contact and get in personal touch with our consumers. A man who had utterly refused to do anything and all the influences which it was possible to bring about had been employed to get him to withdraw his complaint, was called upon and after discussing it for some time he says, "What do you want me to do; you tell me there will be a shortage and that I must prepare for something else? I know that it is costing more money than it ever cost and I am not only willing to pay the price you have asked for it, but I am willing to pay an increased price, if necessary." Now why was that? Because he was led to realize the importance of an increased price if he expected to get the supply, and he had implicit confidence in the statements that were made to him as to the necessity for the increase in price. Now I urge on all of you that we must take the general public into our confidence if we would have a satisfied consumer. First give him service. If you are not able to give him service which he is willing to pay for, then explain to him the exact facts. Be honest with him. Do not hesitate and keep from him the facts; but say to him there will be a shortage and that you better prepare to take care of yourself when these peak loads come on an extremely cold day. What will he do? He says he will be willing to pay for the service at the increased price because he feels that you are doing everything you possibly can to get the gas for me. We started in wrong at the beginning. It is a good deal like the fellow who had his head hurt. He applied to the doctor to have his head bandaged. He says, "What is the matter with you?" "I had my head hurt." He put on the X-ray and looked it all over, and he says, "There is only one thing for you to do." "What is it?" "Take your brain out and scrape it." Well, he says, "What do you mean?" "Why," he says, "That is all I can do for you; it will take at least a couple of days." He says, "All right, it is doing me no good where it is now; go ahead." The doctor replied, "Come back in a couple of days and I will have it ready for you." The fellow was gone for several weeks and he came back to the doctor's office and the doctor said, "Where have you been all this time?" Oh, I have been having a good time." The doctor says, "What have you been doing?" "Oh, I just went out and got in the natural gas business" (laughter and applause).

I don't want to give you any fatherly advice, but I want to say to you, as members of this Association, take you gray matter with you when you discuss supply and demand of the commodity you have for sale. Be fortified with facts and figures so that you can make the public, the public utilities commissioners, the manufacturer and the people of the community know what the facts are. Give them all the information you have as to the actual condition of the commodity which you are selling; that it has a hundred per cent. power; that it is the real thing and the only real thing for accomplishing the purposes for which it is used and that you are giving them their full share and that it is costing you from time to time more money than you are receiving for it. Tell them that if they want to continue in the service, they must pay you more money for it. It is not a question merely of advertising, but take a clean sheet of paper and figure out for them that you need so much money for development; you need so much money for running expenses and extensions to pipe lines and that for all of these necessary expenses in order to get the supply to meet the demand you must have five cents more on the thousand cubic feet for your gas. Then after the public has been informed as to your necessities in order to supply the demand and make a reasonable profit, publish it the next morning in the newspapers that the price after July first will be five cents more. Do not be content with merely announcing that after a certain time the price will be raised five cents, but go further than that and be ready to tell them intelligently, honestly and frankly the reasons for the increase of price. I thank you very much (applause).

so in this case? Did they not fix a higher rate in the other case? Did they not find a much higher valuation?" and so on all the way down the line and the advertisement wound up with a statement something like this, "If you were seriously injured and it became necessary to employ a surgeon to conduct a serious operation to save your life, whom would you employ? The best and most skilled surgeon you could obtain or would you employ one who admittedly had gained all his knowledge and experience in that particular field of endeavor by reading books and talking with other surgeons?" When that advertisement appeared you could have almost heard the laugh that went over the town. When the mayor came back he postponed the meeting of the council until the following month. That has been almost a year ago and there has not been a session of the town council in that city with reference to that subject since that time and the price has not been reduced in that town up to date. I am simply giving you that illustration showing the power of advertisement in reaching the general public.

Another instance that occurred in practically the same campaign. It became necessary to give notice of the discontinuance of cheap boiler service,—and right here I want to say when I speak of "industrial service," I do not have in mind boiler service; but I have reference to that high grade business that can afford to pay higher prices rather than discontinue the use of natural gas and that is distinct from boiler service which is another matter altogether. So do not fix in your minds the idea that I am talking about industrial business when I am speaking of cheap boiler service, because I am not. I know that you can not put that on the same basis as other kinds of service. In this particular instance we gave notice that boiler service would be discontinued on a certain day. There came considerable opposition from the Chamber of Commerce. The Chamber of Commerce being a very active factor in that city, they called a meeting and a goodly number of representative business men of that city attended the meeting. They proceeded at once to condemn the gas company in unmeasured terms. They were about to pass a resolution condemning the gas company for this socalled unwarranted action in turning off boiler service to the industries of the town. It occurred to them, however, that the gas company might have something to say by way of defense as to why it had taken this action, and before passing the resolution they called upon me as the representative of the company to see if I cared to say anything. I told them I was very glad to be there, although I had not been invited and the company had not been notified of the meeting; that we had in our archives a beautifully engraved certificate of membership in their honorable body for which we had paid one hundred dollars per year for the privilege of being a member of the Chamber of Commerce and yet, notwithstanding the fact that we were a member of that body, with dues fully paid up, we had not only not been invited to be present, but the company had had no notice of this meeting. I said that I was very glad to be there and would assist them in any way I could in arriving at a correct understanding of the situation. I had taken the precautions to have with me the monthly statements of the gas company. I laid them down in a stack on top of the desk in front of me and said to them, "Gentlemen, here are the private, confidential statements of this company showing the actual costs of operation, including all expenses, and showing actual receipts from the operation of its business month by month throughout the year and you can pick out any one month—I do not care which one you take, and if you do not believe I am telling the truth, you may send in any public certified accountant or any competent accountant in this city to examine our books to verify the truthfulness and the accuracy and the correctness of these monthly statements and if you find anything misrepresented or anything not true, then you do not need to believe a word I say." Then I picked up one of the monthly statements at random and it happened to be the month of May. I said to them, "Gentlemen, this statement of our business for the month of May shows that we sold in this city 231,000,000 cubic feet of boiler gas at an average price of so much and this same sheet shows that gas has cost us so much in excess of the price we sold it for. Now as a sound business proposition would any one of you business men have sold the commodity that you were handling on the same basis? I know you would not. You could not afford to do it and hope to continue in business. We can not afford to do it and hope to continue in business long. We want to be frank and fair minded and straight forward about this whole matter. We are perfectly willing to give you all the facts in relation to our business. We are perfectly willing to show you our books and to convince you that we are telling the truth about what this gas costs us and what we get for it; but from the standpoint of good business, we cannot sell you that gas below cost and we do not propose to do it." So before we got through we had hard work to keep them from passing a resolution condemning the mayor instead of us (applause).

Mr. John M. Garard: Mr. President, I do not want all this to go by without this vast audience knowing where I stand. I am so utterly biased on this rate question that what I have to say won't do the outside public any good because the language I would use would not be fit to be recorded in the report of our proceedings and the outside public would not know anything about it. But when I come to consider how we have been belittled and how we have been sat upon by various consumers, both industrial and domestic, I really feel so insignificant that I lose all hope of ever being able to appear and obtain any credit at all, before these various commissions. We are simply the laughing stock of everybody. There isn't any question about it. And when we thought if we put gas up to sixteen cents, we would lose every customer we had and then wondered why we didn't make it thirty and when we put it at thirty, they said, "Well, we will take just about the same amount that we have been using," and then we were disappointed because we did not make it forty, but decided to split the difference and make it thirty-five, saying, hereafter any industrial consumer that wants to burn Ohio Fuel Supply gas will pay us thirty-five cents

per thousand, even though our domestic rate may only be twenty-five cents in the town in which it is being consumed, we then realized what we had been up against. I am giving you that sweet morsel to take home with you, and I hope you will all follow the example of the Ohio Fuel Supply Company.

## NATURAL GAS AND NATIONAL SERVICE.

### Military, Industrial and Domestic Needs Met By Natural Gas Industry.

NATURAL gas and gasoline are two vast factors in this wartime-emergency, and these industries and our country are indebted to Samuel S. Wyer of Columbus, Ohio, one of our best known authorities in these fields, for a statement that clearly sets forth an important situation.

Mr. Wyer became at an early date a member of the National Committee on Gas and Electric Service, a committee advisory to the Advisory Committee of the Council of National Defense. Though the Natural Gas Association of America, through its president is officially represented on the Committee of Gas and Electric Service, Mr. Wyer stands as a personal tower of helpfulness. In fact, we have evidence that his helpfulness has materialized, by virtue of the completeness of the report recently made by him through the Council of National Defense to the Government, and of which the following is a part:

Those portions in this article not quoted are interjected by the pen of our friend W. Re Brown, esteemed editor of our free distribution contemporary, "The Gas Magazine," published locally, bearing information for patrons of the Ohio Fuel Supply Company of Columbus.

Mr. Wyer says:

"The natural gas business is unique in that it combines a mining venture with all the duties going with the rendering of a public utility service. That is, it has been the universal practice of all courts, legislatures and public utility commissions to always regard the distributing or transmission end of the natural gas business as a public utility, and therefore with clearly defined duties to the public, similar to all other public utilities."

Think of it, more than ten million people depend on natural gas for their cooking, heating, lighting, etc. The magnitude and economic importance of the natural gas industry are shown in Mr. Wyer's report, when he gives the following facts:

(a) Natural gas is handled in about one-half of the gas distributing plants of the United States.

(b) There are 2,195,000 domestic natural gas consumers in the United States. Hence more than 10,000,000 people are dependent on natural gas for their cooking, heating or lighting service.

(c) The average consumption per domestic consumer per annum in the United States is 100 M. cubic feet.

(d) There are now 36,484 producing gas wells in the United States.

(e) Last year's production of natural gas amounted to 628,000,000 "M." cubic feet.

To many it will be a surprise to learn that seventy per cent. of all the gas sold in the United States is natural gas, but the report reads:

"The magnitude of the natural gas industry may also be emphasized by contrasting it with the artificial gas industry where for last year the total production was:

| | |
|---|---|
| Oil gas | 14,000,000 M. cu. ft. |
| Coal gas | 44,000,000 M. cu. ft. |
| By-product coke oven gas | 84,000,000 M. cu. ft. |
| Water gas | 124,000,000 M. cu. ft. |
| Total artificial gas | 266,000,000 M. cu. ft. |

"Natural gas, therefore, represents about 70 per cent. of all the gas sold.

At the present time, for every three cu. ft. of natural gas used, two cu. ft. are used in industrial operation and one cu. ft. for domestic service.

**Substitutes for Natural Gas.**

| Name | Annual Quantity to Equal 628,000,000 M. cu. ft. Natural Gas. | Annual Quantity Raw Fuel Required to Make Equivalent of 628,000,000 M. cu. ft. Natural Gas. | Annual No. of Railroad cars required to Haul Raw Fuel for Substitutes. |
|---|---|---|---|
| Coal Gas | 1,233,000,000 M. | 125,000,000 tons coal | 3,125,000—40 ton cars |
| Coke Oven Gas | 1,233,000,000 M. | 268,000,000 tons coal | 6,700,000—40 ton cars |
| | | 24,000,000 tons coal | 600,000—40 ton cars |
| Water Gas. | 1,233,000,000 M. | 6,166,000,000 gal. oil | 1,027,000—6000 gal. tank cars |
| Producer Gas | 5,024,000,000 M. | 36,000,000 tons coal | 900,000—40 ton cars |
| Electricity | 99,360,000,000 KW. | 149,000,000 tons coal. | 3,725,000—40 ton cars |
| Fuel Oil | 5,464,000,000 Gal. | | 910,000—6000 gal. tank cars |
| Gasoline | 5,744,000,000 Gal. | | 957,000—6000 gal. tank cars |
| Alcohol | 9,288,000,000 Gal. | | 1,548,000—6000 gal. tank cars |

There is absolutely no comparison as between the heating value of natural gas and the artificial kind, which is made by various processes, and sold at from three to four times the price of natural gas. The heating value of the natural gas in the United States will average 1100 B. T. U. per cubic foot, or twice that of artificial gas.

Many believe, however, that although natural gas has greater heating value, it is not as valuable for lighting, but the illuminating value of natural gas is shown by Mr. Wyer, when he quotes the tests made by the United States Bureau of Standards, showing that one cubic foot of natural gas, burned in a good mantle burner, will give the same light as more than one and a half cubic feet of manufactured gas.

Perhaps the most interesting part of the report is that in which is shown the enormous quantities of other fuels that would be required to supply the vast amount of natural gas served to the public in one year.

In order to grasp these great amounts it is well to know that when Mr. Wyer refers to so many "M." cubic feet of gas, he is taking the thousand cubic feet, such as is measured through your meter at so many cents per thousand. Above will be found a table showing the comparisons just as submitted to the Defense Committee.

**State Relationship.**

The relative amounts of natural gas consumed by the various states in the United States is shown in the following:

| State. | per M. cu. ft. | of Total |
|---|---|---|
| Pennsylvania | 176,000,000 | 28 |
| Ohio | 146,000,000 | 23 |
| West Virginia | 95,000,000 | 15 |
| Oklahoma | 65,000,000 | 10 |
| Kansas | 49,000,000 | 8 |
| Louisiana | 25,000,000 | 4 |
| California | 22,000,000 | 4 |
| New York | 19,000,000 | 3 |
| Texas | 13,000,000 | 2 |
| Indiana | 8,000,000 | 1 |
| Illinois | 3,000,000 | 1 |
| 12 Other States | 7,000,000 | 1 |
| | 628,000,000 | 100% |

This tremendous sale of natural gas is not evenly divided among the months. It cannot even be stored in tanks, warehouses, or hoarded in any other way such as we have heard so much of since war was declared. It must be always ready to serve you just, and only, when you need it most. Mr. Wyer's report brings this out vividly, when he says:

"The domestic load variation in a natural gas plant is very marked and the following represents a typical operating condition in a normal plant. The percentage figures represent the part of the total annual domestic load carried for the respective months:

| | |
|---|---|
| July | 1% |
| August | 2% |
| September | 3% |
| October | 6% |
| November | 7% |
| December | 12% |
| January | 25% |
| February | 27% |
| March | 9% |
| April | 5% |
| May | 2% |
| June | 1% |
| | 100% |

"The industrial load is practically uniform and overlaps the domestic load peak. This will be especially marked where natural gas is used in munitions plants."

He further tells the defense council that at least 85 per cent. of all the natural gas delivered in the United States must be compressed in the field in order to transport it to the consumer. For this service over 200 compressing stations are required, aggregating more than 320,000 horsepower of compressor capacity.

**Immediate Needs.**

But what really interests us is to know what immediate service the natural gas industry can render, at this time when it seems as though the whole world has come to depend upon us to end the great conflict between right and wrong. What can the natural gas men do in this terrific struggle to free the world? It is well that we all know, and squarely face, the facts so concisely presented for the quick reference of those men who have undertaken to organize the great industries for the defense of our country. Here are the facts:

"The immediate needs of the natural gas industry, to place it on the most effective footing for rendering adequate service as a public utility to the 10,000,000 people dependent on it for their cooking, lighting and heating service, and to the nation-at-large in connection with the manufacture of munitions in the present emergency, may be summarized as follows:

(a) An intelligently directed campaign against unnecessary waste of gas will result in a curtailment of the demands for service.

(b) Intelligent drilling operations ought to be stimulated immediately so as to make the drilling operations for the next three years exceed the present average.

(c) Immediate co-ordination of the munitions gaseous fuel requirements with the natural gas plant serving possibilities.

(d) Extensive study of the pipe line system with the view of use of interconnection of lines in certain places to increase the efficiency of the entire net work of main lines.

(e) Arrange immediately for the furnishing at reasonable prices, even if these must be fixed by governmental agency for all material necessary to well-drilling operations.

(f) Arrange at once for keeping all men absolutely necessary to natural gas operations at such employment, rather than to have them enlist.

(g) It would be desirable to make suitable arrangements so that such men as would ordinarily go into military service, but instead stay in the public utility service can be given official recognition by badge or uniform so as to avoid the much hated 'slacker' expression.

## LOSS OF GAS, GASOLINE AND PRESSURE.

THE tremendous loss of gas that has obtained in the Caddo and Red River fields through wells that have gotten beyond control, has meant not only this tremendous loss of gas itself, but of gasoline that might have been recovered from these millions of feet of gas, and as a third item of loss, is the pressure that naturally escapes with the escaping gas.

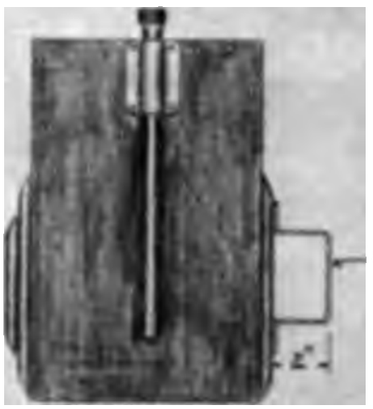
Recently, in the Northwestern Louisiana field those methods which were used in the Salton Sea have been called for. They were engineering feats notable indeed.

The gas pressure is the great power in instances back of oil production. It is this great pressure that forces the oil to the surface, and when this pressure is lessened, natural oil delivery is lessened in proportion.

It is a matter of vital importance all along the line, that every wild gas well should be bridled quickly, and as far as possible that especially wells should be so handled as to avoid getting beyond control.

EXTENSION STEM FOR GATE VALVE

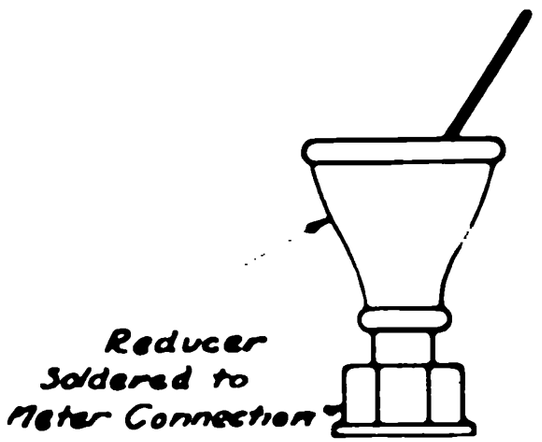
TO PREVENT TIN METERS FROM RUSTING




METER BRACE

METER AND GAUGE ARRANGEMENT SAVES TIME

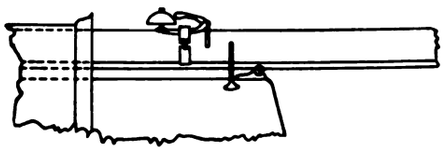
THERMOMETER HOLDER



## WARNING BELL ATTACHED TO PROVER.

J. R. Gilbert, Fort Worth, Texas.

While running a slow check test on a meter the operator may give his attention to other matters and the bell

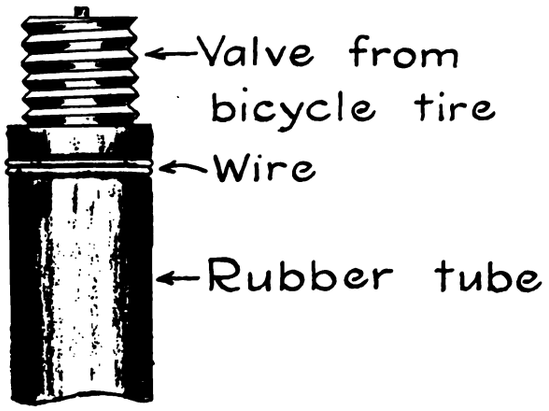


WARNING BELL FOR METER PROVER.

will give a warning when the test is nearly finished. The bell is attached to the prover with a movable band so as to allow setting for tests of various lengths.

## VALVE FOR GAS BAG TUBE.

Wm. Hagan, The East Ohio Gas Company, Cleveland, Ohio.



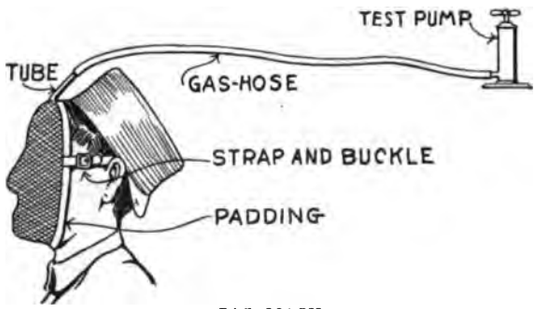

VALVE FOR GAS BAG TUBE.

This wrinkle consists of attaching a bicycle tire valve to the tube of a rubber gas bag, and connecting same to a pump for inflation.

## A HOME-MADE GAS MASK.

H. H. Harrington, Citizens' Gas & Electric Co., Elyria, Ohio.

Procure wire-gauze false-face without eye holes at notion store. Sew light padding around inside of edges

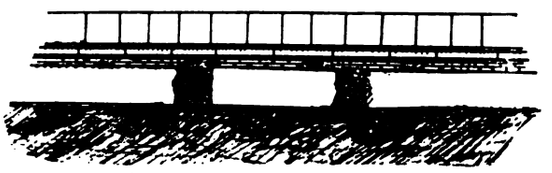



GAS MASK.

to fit face, solder a tin tube to top, attach strap with buckle to go around head to hold mask in place, attach tube to test pump. No gas will penetrate gauze and in case of fire the face, eyes and lungs are protected.

## LEAVE SECTIONS OF PAVEMENT TO PREVENT CAVE-IN.

James J. Cummins, The Ohio Fuel Supply Co., Columbus, Ohio.



TO PREVENT PAVEMENT CAVE-INS.

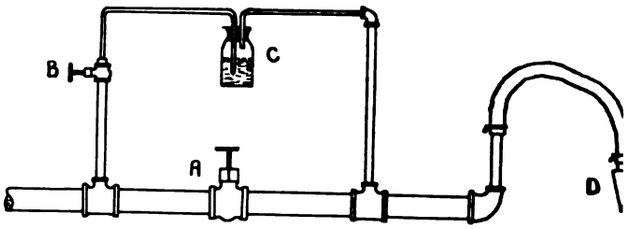
In digging a trench on paved streets or well packed macadam roads, it is a good practice to leave sections of the paving, or macadam, every ten or twelve feet, as shown in the sketch.

These sections need only be a foot or so wide and the earth may be removed beneath them. These little sections thus left help to prevent a cave-in and they also give the old road level when putting in the pavement patch, after the fill-in.

## DEVICE FOR TESTING TOPS OF METERS.

J. R. Gilbert, Fort Worth, Texas.

This device consists of a by-pass through a bottle of water and a hose and a funnel connection. To operate:

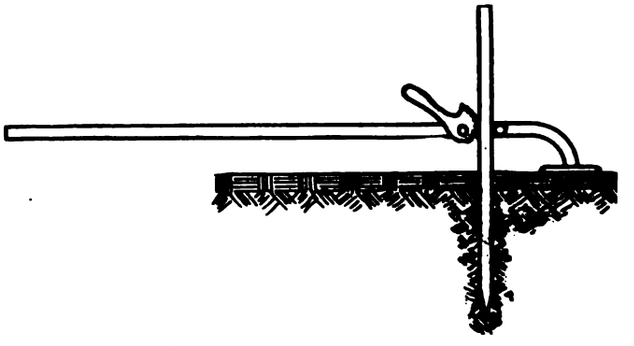



FOR TESTING TOPS OF METERS.

punch small hole in the top of the meter to be tested and insert funnel (D); apply pressure, close main valve (A) and open by-pass valve (B). If the meter top leaks bubbles will pass through bottle (C).

## PULLING TEST BAR FROM PAVEMENT OVER MAIN LINE.

W. J. Gagen, Fort Worth Gas Co., Fort Worth, Texas.



TOOL FOR PULLING TEST BAR FROM PAVEMENT.

This tool consists of a lever as shown. The lever is made from 1 inch by 1½ inch steel and is fitted with a jaw made up of a pin on one side and a sharp toothed grip on the other.

## THREE-IN-ONE WRINKLE THAT HELPS IN JOPLIN.

R. J. Crohan, Supt., Joplin Gas Co., Joplin, Missouri.

We submit for your approval exhibits No. 1, No. 2, and No. 3.

EXPLANATION AS TO EXHIBIT NO. 1.

This is a gas ledger index made of blackboard cloth, size 28"x28", which we find to be a great help to our ledger keepers. It increases rapidly in looking up accounts.

EXHIBIT NO. 1.

EXPLANATION AS TO EXHIBIT NO. 2.

No. 2 will give you the outline of method employed in having a small station made in number to correspond with the ledger number. This station number follows the ledger to the different desks so that during the discount period from the first to tenth of the month the teller in waiting on the customer is able to tell from the index at a glance the number of the ledger, then the station is a guide to the desk where ledger is located which is a great time saver during the busy days of the month which all helps to relieve the congestion in our office during this period.

EXHIBIT NO. 2.

EXPLANATION AS TO EXHIBIT NO. 3.

This is a sorting box made of tin with twelve compartments which facilitates the sorting of coupons very materially and needs on explanation.

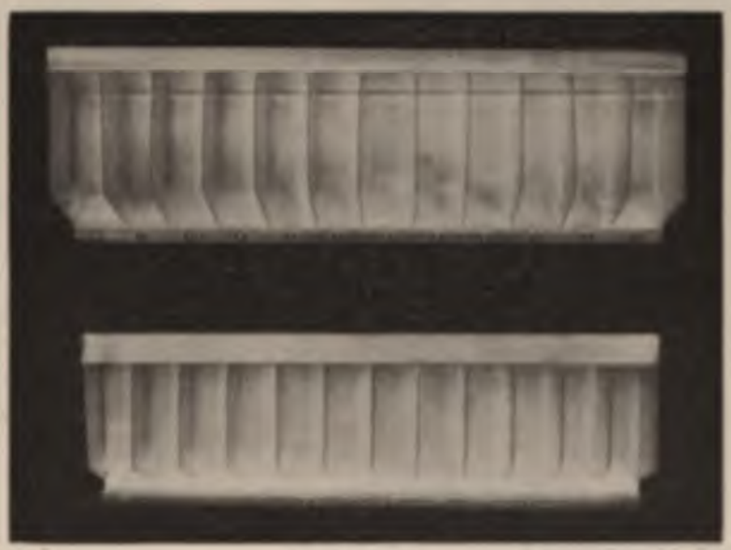


EXHIBIT NO. 3.

Through assistance of the three simple devices the Joplin Gas Company have made a very material saving of time for the office employees during the busy days and as we make about 90% of our collections during the first ten days of the month we would hardly be able to get along with the present office facilities should we discard the three devices herein listed.

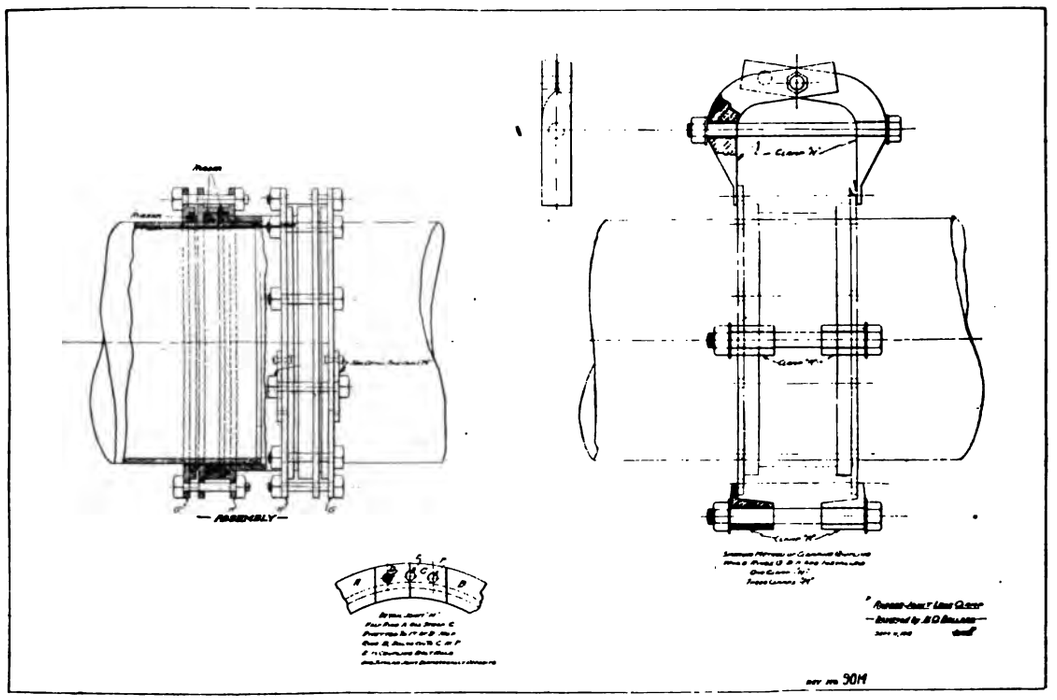
Permit me to say further that our ledgers are arranged in alphabetical order with reference to the streets running parallel one way and indexing in numerical order with the cross streets running parallel.

## RUBBER JOINT LEAK CLAMP.

R. B. Lloyd, Supt. Lines. H. O. Ballard, Supt. Production, Wichita Natural Gas Co., Bartlesville, Okla.

Owing to the fact that the emergency sleeve commonly used for high pressure gas lines is so expensive and heavy to handle, this wrinkle was devised to take the place of the ordinary emergency sleeve. The clamp is of such light construction that one man can easily handle and repair a leak without extra labor. The material used consists of two sets of followers, either Dayton or Dresser, which have been sawed in half with one set of followers turned out to the outside diameter of the center ring. The other set, the same size as the outside diameter of the pipe. All rings are made to join together in the same manner as collar leak clamps are joined, using rubber as with common collar leak clamps.

To install with pressure on the line, we use three two-jaw clamps which fit from outside to outside of the old coupling and allow the removing of the original coupling bolts and holds the followers in place while putting on the repair clamp. The clamp is put on with short bolts, extending from one inside follower to the outside. When installed, leaving no truss bolts as used in the original coupling.

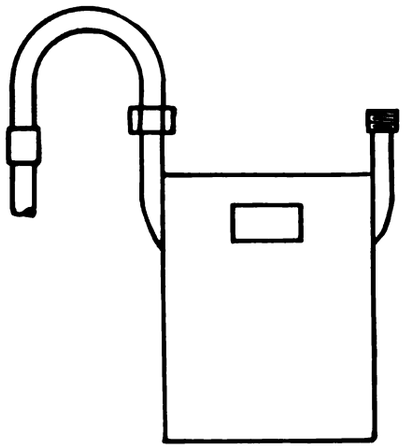


RUBBER JOINT LEAK CLAMP.

## TO PREVENT TIPPING OF METERS.

J. H. Stinson, Fort Worth Gas Co., Fort Worth, Texas.

Use a return bend on one side of meter instead of usual fittings.

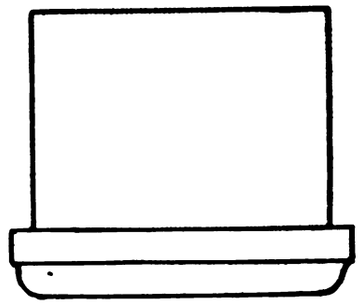


TO PREVENT METERS TIPPING.

## DIPPING POT FOR SOLDERING IRONS.

J. R. Gilbert, Fort Worth, Texas.

A short piece of eight-inch pipe with cap attached makes an indestructible dipping pot for soldering irons.



DIPPING POT FOR SOLDERING IRONS

# RESULTS OF DRILLING—LATEST REPORTS

## PENNSYLVANIA

### ALLEGANY FIELD

[illegible] McKean Nat Gas [illegible] Gas
[illegible] Gas
[illegible] Gas

[illegible] gas wells

### BRADFORD FIELD

[illegible] United Natural Gas [illegible] Gas

[illegible] gas wells

### MIDDLE FIELD

[illegible] Tompsett Bros et al Dry
[illegible] Nat Gas Line Co Dry
[illegible] Johnson & Myers Bros [illegible] Gas
[illegible] Penna Oil Co Gas
[illegible] Penna Oil Co Gas
[illegible] John Cochran [illegible] Gas
[illegible] Penna Oil Co Dry

[illegible]
[illegible] gas wells

### VENANGO CLARION

[illegible] Citizens Banking Co [illegible] Dry
[illegible] P. McClimont estate [illegible] Gas
[illegible] nited Natural Gas Co Gas
[illegible] United Natural Gas Co Gas
[illegible] Kelly and others Gas
[illegible] Sands Oil & Gas Co Gas
[illegible] S. W. W. & W. Co. Reagle [illegible] Dry
[illegible] Thomas Stewart et al [illegible] Dry
[illegible] James McGuire et al [illegible] Dry
[illegible] M. Hess Dry
[illegible] et al McLaughlin & Co Gas
[illegible] to Kenemuth Gas
[illegible] unts
[illegible] Furnace Co Gas
[illegible] & Finnegar Beck estate [illegible] Dry

[illegible]
[illegible] gas wells

### BUTLER ARMSTRONG

[illegible] Bros Gas
[illegible] Nat Gas Dry
[illegible] et al Gas
[illegible] Agnes McKee et al Dry
[illegible] McElhaney & Co [illegible] Dry
[illegible] Alexander Sherman et al [illegible] Gas
[illegible] & Co Gas
[illegible] Troutman Oil Co Dry

[illegible]
[illegible] gas wells

### SOUTHWEST PENNSYLVANIA

Washington Oil Co Dry
[illegible] Co. of W. Va Gas
[illegible] Co. of W. Va Gas
[illegible] & Co Dry
[illegible] Oil Co Dry
[illegible] & Co Gas
[illegible] Peoples Gas Dry
[illegible] & Co Gas

[illegible]
[illegible] & Co Dry
[illegible] Edmund Oil Co Dry

[illegible]
[illegible] & Co Gas
[illegible] Black & Co Dry

Burgettstown
Oglevee Peoples Nat Gas [illegible] Dry
Scott Burgettstown Oil Co Dry
Imperial
Faulk Graden & Co Dry
Roseland Watson & Co Gas
Beaver County
Buchannan Pittsburg parties [illegible] Dry
Conner Hope & Co Dry
Miller T. J. Bell Dry
Mt Morris
Tennant Peoples Nat Gas [illegible] Gas
Stewart Peoples Nat Gas [illegible] Gas
Morris Nat Gas Co. of W. Va Gas
Caseman Bros Peoples Gas Dry
Miller, M. P. & M. Co [illegible] Gas
Mary J. Miller Mfg. J. & H. Gas
Bevan, Mfg. J. & H. [illegible] Gas
Iams Cochran & Lunt [illegible] Gas
Stewart Philadelphia Co Gas

Gas 4
Dry 14

## WEST VIRGINIA

Mannington
Camden Reserve Gas Co Dry
Paugh Reserves Gas Co Gas
Carder Hope Gas Co Gas
Whiteman Hope Gas Co Gas
Davis Mfg. J. & H. Dry
Green S. P. Co. [illegible] Dry
Kendall Eastern Petroleum [illegible] Gas
Freeman Hope Gas Co Dry
Bonner Hope Gas Co Gas
G. Romine Hope Gas Co Gas
Davis Hope Gas Co Gas
Morgan Hope Gas Gas
Hamilton Hope Gas Co Dry
Carpenter & Co. Gas
Speer Hope Gas Co Dry
Sellers Bros. & Co. [illegible] Dry
Lemley Hope Gas Co Gas
Lewis Hope Gas Co Gas
Jones Fuel & W. Co Gas
[illegible] Coal Co
Lancaster Mfg. J. & [illegible] Gas
[illegible] Mfg. [illegible] & H Gas
[illegible] Gas
[illegible] Dry
[illegible] Gas
[illegible] Gas
[illegible] Dry
[illegible] Gas
[illegible] Gas
[illegible] Gas
[illegible] Dry
[illegible] Gas
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[illegible] Gas
[illegible] Gas
[illegible] Gas
[illegible] Dry
[illegible] Gas
[illegible] Gas
[illegible] Gas

Booth tract, E. H. Lockhart 1 ..... Dry
Henry, Roberts Oil 37 ..... Gas
Depue-McClung, Red River O. & G. 16 ..... Dry
Pleasants County—
Westbrook, Allen & Co. 1 ..... Dry
Holdren, Octo Oil 38 ..... Dry
Bailey W H. Steer 2 ..... Dry
Bills, Noland & Gallagher 3 ..... Dry
Calhoun County—.
Johnson, Hope Gas 1 ..... Gas
Mitchell, Martin Crawley 1 ..... Gas
Roane County—
Harper, Columbia Carbon 1 ..... Dry
Hersaman, S. P. O. 1 ..... Dry
Kanawha County—
Young, Summit O. & G. 1 ..... Gas
Sunday Creek Coal Co. U. F. G. 3 ..... Gas
Sunday Creek Coal Co. U. F. G. 4 ..... Gas
Bower, Kanawha Valley Prod. 5 ..... Gas
Godshall, S. P. O. 1 ..... Dry
F. R. C. C. Co., J. B. Weir 72 ..... Gas

Dry ..... 27
Gas ..... 20

### SOUTHEASTERN OHIO.

Woodsfield—
Reasbeck, J. W. Price & Co. 2 ..... Dry
Perry County—
Kochensparger, Wildermuth Oil 1 ..... Dry
Steen, Carter Oil ..... Dry
Burns, John Denman & Son 4 ..... Dry
Pence, Preston Oil 8 ..... Gas
Dawley, W. W. Vensel 1 ..... Dry
Hocking County—
Slatzer, Hocking Oil 8 ..... Dry
C. C. B. Co., C. C. B. 3 ..... Dry
Knox and Holmes—
Hunter, Logan O. & G. 1 ..... Dry
Simmon Logan O. & G. 1 ..... Dry
Muskingum County—
Tuttle, Guthrie & Co. 1 ..... Gas
Coshocton County—
Horn, O. F. S. 1 ..... Dry
Macksburg—
McBride, Phillips & McBride 1 ..... Dry
Noble County—
Stone, J. C. McKee & Co. 4 ..... Dry
Weber, Harry Alder & Co. 1 ..... Dry
Morgan County—
Cody, Cody Farm Oil 1 ..... Dry
Athens County—
Reuter, Myers Oil 7 ..... Gas
Marietta—
West, Meeks & Co. 1 ..... Dry
Greene, F. D. Kerr & Co. 6 ..... Dry
Breckenridge, Oil City Trust 13 ..... Gas
Johnson, E. Clark 1 ..... Dry
Barnett, Barnett & Co. 1 ..... Dry
Hutchinson, Wickersham & Co. 2 ..... Gas
Decker, Patterson Bros. 1 ..... Dry
Crooks, L. Stephens 1 ..... Dry
Male, L. Stephens 1 ..... Gas
Gardner, Lambert & Johnson 1 ..... Dry
Wagner, Dillon & Wagner 5 ..... Dry
Hune, Shay & McMullen 8 ..... Dry
Carroll County—
Maple, Mt. Zion Oil 1 ..... Gas
Jefferson County—
Burnett, Harry E. Tope 3 ..... Dry
Dodd, Dodd & Co. 1 ..... Dry
Kountz, M. A. Russell 2 ..... Dry
Columbiana County—
Hahn, Duncan & Co. 1 ..... Dry
Belmont County—
Poulton, Belmont Drilling 1 ..... Gas
Gilmore, O. F. S. 1 ..... Gas
Hall, O. F. S. 1 ..... Gas

Dry ..... 27
Gas ..... 10

### PENNSYLVANIA FIELDS.

| | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Allegany | 19 | 29 | 0 | 3 |
| Bradford Field | 48 | 124 | 0 | 1 |
| Midd e Field | 22 | 23 | 3 | 4 |
| Venango-Clarion | 74 | 143 | 6 | 8 |
| Butler-Armstrong | 23 | 26 | 5 | 3 |
| S. W. Pennsylvania | 60 | 258 | 14 | 14 |
| West Virginia | 128 | 1,094 | 27 | 30 |
| S. E. Ohio | 98 | 913 | 27 | 10 |
| Total | 472 | 2,610 | 82 | 73 |

### CENTRAL OHIO.

#### LICKING COUNTY.

Granville—Linnell Columbus Nat. Gas 2 ..... Gas
E. Carlyle, Heisey Gas 1 ..... Dry
Washington—Jno. Mills, Licking Window Glass 1 .. Gas
Licking—Vermillion, Wehrle Stove 1 ..... Gas

Dry ..... 1
Gas ..... 3

#### FAIRFIELD COUNTY.

Walnut—C. B. Miller, Ohio Fuel Supply 1 ..... Dry
Emma Taylor, Ohio Fuel Supply 1 ..... Dry
Wm. Zellinger, Ohio Fuel Supply 1 ..... Gas

Dry ..... 2
Gas ..... 1

#### KNOX COUNTY.

Clay—Martin Horn, Ohio Fuel Supply 1 ..... Dry

#### ASHLAND COUNTY.

Green—H. R. Long, Logan Gas & Fuel 1 ..... Dry
H. S. McGuire, Logan Gas & Fuel 1 ..... Gas
Lake—Obrecht, Logan Gas & Fuel 1 ..... Gas

Dry ..... 1
Gas ..... 2

#### MEDINA COUNTY.

Litchfield—E. S. Scoville, Jos. H. Artman 1 ..... Gas
Lafayette—J. E. Welpman, Medina Gas & Fuel 1 .. Gas
Brunswick—S. F. Kennedy, Medina Gas & Fuel 1 .. Gas
Medina—Kennedy, Medina Gas & Fuel 1 ..... Gas
Liverpool—J. Hansel, Ohio Fuel Supply 1 ..... Gas

Gas ..... 5

#### WAYNE COUNTY.

Congress—Wm. Brinkerhoff, Ohio Fuel Supply 1 .... Dry
Wayne—Cummings, Ohio Fuel Supply 1 ..... Gas
E. W Walton, Ohio Fuel Supply 1 ..... Dry
Chester—Swinehart, Ohio Fuel Supply 2 ..... Gas
Clinton—A. Vrooman, East Ohio Gas 1 ..... Gas
E. V. Morris, Medina Gas & Fuel 1 ..... Dry

Dry ..... 3
Gas ..... 3

#### RICHLAND COUNTY.

Monroe—Homer & Oswald, Logan Gas & Fuel 1 ... Gas
Coulter, Richland Land & Dev. 1 ..... Dry
J. W. Barry, Ohio Fuel Supply 1 ..... Gas

Worthington—B. Bemiller, Logan Gas & Fuel 1..... Gas

Dry ..... 1
Gas ..... 3

**CUYAHOGA COUNTY.**

Middleburg—A. Koonan, East Ohio Gas 1..... Dry
Strongville—T. Schilemnski, Berea Pipe Line 2..... Gas
Dover—E. Snitzel, Logan Gas & Fuel 1..... G s
Miller, Melrose Oil & Gas 1..... Gas
D. Lathrop, Melrose Oil & Gas 1..... Gas

Dry ..... 1
Gas ..... 4

**VINTON COUNTY.**

Richland—Ziegler, Ohio Fuel Supply 1..... Gas
Harrison—Collins, Ohio Fuel Supply 1..... G s
Elk—M. E. Winter, Ohio Fuel Supply 1..... Gas

Gas ..... 3

**HOCKING COUNTY.**

Benton—Paxton, Ohio Fuel Supply 1..... Gas

**JACKSON COUNTY.**

Washington—Winter, Ohio Fuel Supply 1..... G s
J. C. Reed, Ohio Fuel Supply 1..... Gas

Gas ..... 2

**PERRY COUNTY.**

Thorn—Alpsach, Logan Gas & Fuel 1..... Gas
Wm. Culp, A. H. Heisey 1..... Gas

Gas ..... 2

**MARION COUNTY.**

Clarion—Ed. L. Gray, Caladonia Oil 1..... Dry

## CENTRAL OHIO FIELD.

**SUMMARY OF COMPLETED WORK.**

| | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Licking | 4 | 0 | 1 | 3 |
| Fairfield | 3 | 0 | 2 | 1 |
| Knox | 1 | 0 | 1 | 0 |
| Ashland | 3 | 0 | 1 | 2 |
| Medina | 6 | 2 | 0 | 5 |
| Lorain | 0 | 0 | 0 | 0 |
| Wayne | 11 | 185 | 3 | 3 |
| Richland | 4 | 0 | 1 | 3 |
| Cuyahoga | 5 | 0 | 1 | 4 |
| Vinton | 3 | 0 | 0 | 3 |
| Hocking | 1 | 0 | 0 | 1 |
| Coshocton | 0 | 0 | 0 | 0 |
| Holmes | 0 | 0 | 0 | 0 |
| Jackson | 2 | 0 | 0 | 2 |
| Perry | 2 | 0 | 0 | 2 |
| Marion | 1 | 0 | 1 | 0 |
| Total | 46 | 187 | 11 | 29 |

## LIMA FIELD.

**WOOD COUNTY.**

Montgomery—Thos. Brown, Mechanics Banking, 1, 2, 3, 4, 5, 6..... Abd

Abandoned ..... 6

**HANCOCK COUNTY.**

Allen—W. R. Miller, C. L. Casterline, Trus., 2..... Abd
Portage—Ed. Shorp, Sun Co. 3, 4, 5, 6..... Abd
Anna Cooper, Sun Co. 2, 3..... Abd
Liberty—M. Poe, J. Loon, 3, 4, 5, 6, 7, 8, 9, 10; 11, 12 Abd
Findlay—Buckeye lot, Buckeye Ditcher 1..... Gas
Water Works, City of Findlay W. W. 1..... Gas
M. H. Deeds, Herpst Bros. 1..... Dry
Orange—E. J. Wolfley, E. V. Holmden 6..... Dry

Dry ..... 2
Gas ..... 2
Abandoned ..... 17

**ALLEN COUNTY.**

Spencer—Thos. Delaney, W. L. Parmenter 1, 2, 3, 4, 7, 8, 10, 11..... Abd

**AUGLAIZE COUNTY.**

Logan—Wheeler, W. E. Stephenson 1..... Dry

**SANDUSKY COUNTY.**

Scott—H. A. Forrister, H. A. Forrister & Co. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11..... Abd
Gschwind, Fronizer & Hammond 1, 5, 10..... Abd

Abandoned ..... 14

**MERCER COUNTY.**

Union—Mary Smale, Daisy K. Clauss 1, 2, 3..... Abd
L. J. Holloway, Daisy K. Clauss, 1, 2, 3..... Abd
L. J. Holloway, Daisy K. Clauss, 1, 2..... Abd
J. M. Hussey, Daisy K. Clauss 1, 2, 3, 4, 5, 5, 6, 7... Abd
J. P. Patterson, Daisy K. Clauss 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13..... Abd
Liberty—C. Kessler, Canadian Oil & Prod. 4, 6, 9, 10 Abd
P. Emerick 8, Canadian Oil & Gas Prod. 4, 6, 9, 10 Abd
P. Emerick, Canadian Oil & Gas Prod. 1..... Abd
S. Egger, Canadian Oil & Gas Prod. 1..... Abd

Abandoned ..... 38

**VAN WERT COUNTY.**

Jennings—T. E. Jones, W. L. Parmenter 1..... Dry
Willshire—Detrick, E. A. Kuhns & Co. 2..... Dry
Liberty—Custer, B. J. Y. Oil 2, 3, 4, 5, 6..... Abd
Joe Custer, B. J. Y. Oil 1..... Abd
Phillips, B. J. Y. Oil 3, 4, 5, 6, 7, 8..... Abd
J. H. Kach, B. J. Y. Oil 1, 2..... Abd
Wm. Krugh B. J. Y. Oil 1, 2, 3, 4..... Abd
C. Roebuck, B. J. Y. Oil 4, 5, 6, 7, 8, 9..... Abd
A. Miller, B. J. Y. Oil 4, 6, 7, 8, 9, 10..... Abd
W. H. Ayres, B. J. Y. Oil 9, 10, 11, 12, 13..... Abd
Kiser hrs., B. J. Y. Oil 1, 2..... Abd
L. Dickason, B. J. Y. Oil 1, 2..... Abd
J. Bollenbaugh, B. J. Y. Oil 1, 2..... Abd
J. Bollenbaugh, B. J. Y. Oil 3..... Abd
Frank King, B. J. Y. Oil 2..... Abd
W. J. Faar, B. J. Y. Oil 1..... Abd
W. H. Pennell, B. J. Y. 1, 2, 4..... Abd

Dry ..... 2
Abandoned ..... 48

**LUCAS COUNTY.**

Oregan—Geo. Fox, R. P. Stuck 2, 3..... Abd

Abandoned ..... 2

**OTTAWA COUNTY.**

Benton—F. & J. Myerholtz, John W. McCray 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15..... Abd
E. Myerholtz, John W. McCray 1, 2, 3, 4..... Abd
G. Dehring, H. S. & J. B. Hathaway 1..... Abd
F. C. Arndt, John W. McCray 1..... Abd
Fred Buhro, John W. McCray 1, 2, 3..... Abd
E. K. Arndt, John W. McCray 1, 2..... Abd
C. Suhrber, John W. McCray 3..... Abd
John Engle, John W. McCray 3, 4..... Abd

Abandoned ..... 27

**WYANDOT COUNTY.**

Crawford—A. C. Whaley, Albert Burton 1..... Dry

## INDIANA FIELD.

### WELLS COUNTY.

Nottingham—D. Beeler, Jas. G. Hamilton 1, 2, 3.... Abd
Heiler, Jas. C. Hamilton 1, 2, 3, 4, 5, 6..... Abd
M. Blocker, Jas. C. Hamilton 2, 3..... Abd
Jackson—H. B. Huffman, Ohio Oil 1, 2, 7, 8, 9, 11, 13, 14, 15, 16, 17, 18, 20..... Abd
H. B. Huffman, Ohio Oil 21, 22, 23, 24, 26..... Abd
Chester—Ohio Oil 2, 3, 4, 5, 6, 7, 8, 10, 13, 14, 16.... A bd

Abandoned ..... 40

### JAY COUNTY.

Jackson—Ashcraft-Karney 11, James O. Hamilton 5, 6, 10, 11, 12..... Abd
Ashcraft-Karney 12, Jas. O. Hamilton 2, 3, 4, 5, 7.. Abd
Hanlon-Lowry, Jas. O. Hamilton 1, 2, 6, 8, 9..... Abd
Mary Farmer, Jas. O. Hamilton 5..... Abd
E. E. Haines, Jas. O. Hamilton 1, 2, 5..... Abd
J. W. Watson No. 2, Jas. O. Hamilton 1, 2, 3, 4, 6, 7 ..... Abd
Wm. Beard, Jas. O. Watson 2, 3, 5..... Abd
S. E. North, Jas. O. Hamilton 1, 4, 5, 6, 7, 8, 9.... Abd
J. Glendenning, Jas. O. Hamilton 8, 9, 12, 15..... Abd
Hanlon-Lawry, Jas. O. Hamilton 7, 8, 9, 10..... Abd
Ed. French, Jas. O. Hamilton 1, 3..... Abd
P. E. Hanna, Jas. O. Hamilton 2..... Abd
Jos. Glendenning, Jas. O. Hamilton 1..... Abd
A. T. Whitson, Jas. O. Hamilton 1, 2, 3, 4, 5..... Abd

Abandoned ..... 52

### HUNTINGTON COUNTY.

Salamonie—S. M. Fleming, Sun. Co. 2, 4, 8, 9, 10, 12.. Abd
J. Hoover, Sun Co. 1, 4, 6, 7..... Abd
E. McElhaney, Sun Co. 1, 2..... Abd
Hoglen Bros., Sun Co. 1, 2, 3..... Abd
J. H. Lieurance, Sun Co. 2..... Abd

Abandoned ..... 16

### GIBSON COUNTY.

Washington—Sam Ford, Indian Refg. 1..... Gas
Ed. Phillips, Henley & Co. 2..... Dry
Montgomery—T. Mauck, Farmers Oil 1..... Dry

Dry ..... 2
Gas ..... 1

### PIKE COUNTY.

Madison—I. H. Willis, Ohio Oil 1..... Dry
Monroe—W. D. Mason, Ohio Oil 1..... Abd
Washington—Brenton, A. B. Bement 1..... Gas
Patoka—D. C. Barrett, Ohio Oil 1..... Abd
Alf. Hunt, Ohio Oil 4, 9, 14..... Abd
J. B. Harkness, Ohio Oil 5..... Abd
Harlan L. Keys, Ohio Oil 8..... Abd

Dry ..... 1
Gas ..... 1
Abandoned ..... 7

### SULLIVAN COUNTY.

Turman—A. Hopwell, Scott & Riggs 1..... Dry
W. W. Wible, Scott & Riggs 3..... Dry

Dry ..... 2

### MIAMI COUNTY.

Peru—M. Dawson, I. N. Knapp 2..... Dry

### KNOX COUNTY.

Decker—P. Cunningham, J. D. Riggs & Co. 3..... Dry

## KENTUCKY-TENNESSEE.

### WAYNE COUNTY.

Denney—Steele hrs., Beaver Oil 3..... Dry
Dobbs-Dobbs, New Domain O. & G. 4..... Dry
Rock Creek, Beaver Oil 1..... Dry
Parmleyville—S. Keeton, Wood Oil 1..... Dry

Dry ..... 4

### WOLFE COUNTY.

Campton—N. Stamper, Stoll O. & G. 1..... Dry
I. S. Miller, Ohio Oil 1..... Dry
Clayton Center, Mountain Oil 1..... Dry
Stillwater—M. Spencer, Consolidated O. & G. Corp. 1 Dry

Dry ..... 4

### MORGAN COUNTY.

Cannel City—Benton, Elk Fork O. & G. 1..... Dry
Near Mize-Oklahoma-Kentucky Oil 1..... Gas

### ESTILL COUNTY.

Irvine—H. Young, Meldren & Keating 1..... Dry
Wm. Cox, Empire Gas & Fuel 4..... Dry
Geo. Lyle, Federal Oil 1..... Dry
J. L. Edwards, Empire Gas & Fuel 10..... Dry
H. Bicknell, McMahan & Watchhorn 3..... Dry
Jno. W. Rogers, Ohio Fuel Oil 1..... Dry
Allen Powell, W. L. Parmenter & Co. 20..... Dry
Chas. Cox, Crown Oil & Gas 17..... Dry
Chas. Cox, Crown Oil & Gas 18..... Dry
Alexander, Cumberland Prod. & Ref. 18..... Dry
Ancil Puckett, W. S. Raydure 6..... Dry
A. D. Puckett, W. S. Raydure 5..... Dry
L. H. Flinn, J. C. Shamberger 1..... Dry
Horace Warford, J. C. Shamberger 1..... Dry
J. L. Cox, Kentucky Mountain Oil 1..... Dry
H. Gabbard, Haywood-Ky.-N. Y. Oil 1..... Dry
Jas. Sparks No. 2, Henshaw & Co. 1..... Dry
Ison Ballard, Kentucky River Oil 8..... Dry
Dan Rollins, Kentucky River Oil 9..... Dry
Dan Rollins, Kentucky River Oil 10..... Dry
Weireman, Arco Oil 12..... Dry
Dave Newton, Haskell & Co. 1..... Dry

Dry ..... 22

### POWELL COUNTY.

Ashley—Jno. Mullen, Karl K. Dresser 1..... Dry
Jno. Kinzer, Ohio Oil 2..... Dry
Bush hrs., LeRoy Adams Oil 1..... Dry
P. Y. Drake, Van Oil 3..... Dry
S. McIntosh, Federal Oil 3..... Dry
R. J. Macklin, Waston & Crawford 3..... Dry

Dry ..... 6

### ALLEN COUNTY.

Scottsville—Reeves, White Plains Oil 3..... Dry
Mose Fisher, Republic Oil 8..... Dry
Harle Wade, Anderson T. Herd 1..... Dry
Steen, Good Luck Oil 3..... Dry
K. Brown, Eastern Oil 1..... Dry
Foster, Eastern Oil 1..... Dry
Chas. Dobbs, Hinton & Co. 1..... Dry
A. Welsh, Waggoner & Co. 1..... Dry
Ritchie, Meredith & Gillam 1..... Dry

Dry ..... 9

### BATH COUNTY.

Olympia—Payne, Unknown 3..... Gas
Wm. Armatage, Stoner & Miller 1..... Gas
Wm. Hart, Unknown 1..... Dry

Dry ..... 1
Gas ..... 2

### LINCOLN COUNTY.

Waynesburg—Welland, Fisher Oil 1..... Gas
Welland, Fisher Oil 1..... Dry
Buckeye, Wood Oil 1..... Gas

Dry ..... 1
Gas ..... 2

WHITLEY COUNTY.

Williamsburg—C. A. Moss, Southeastern Ky. Oil & Gas 1 ..... Gas
C. A. Moss, Whitley Oil & Gas 1 ..... Gas

Gas ..... 2

KNOX COUNTY.

Barbourville—S. H. Jones, Ohio Oil 1 ..... Gas

CLAY COUNTY.

Manchester—J. S. Clark, Dulin Oil & G. 1 ..... Gas

WARREN COUNTY.

Bowling Green—Robt. Johnson, Huntsman, Dixon & Co. 1 ..... Dry

CASEY COUNTY.

Liberty—Shugars, R. G. Gillespie 1 ..... Dry

## ILLINOIS FIELD.

CLARK COUNTY.

Parker—S. A. Stephenson, Parker Bros. & Co. 8 .... Dry
Mrs. A. R. Hays, Kewanee Oil & Gas 10 ..... Dry
Martinsville—J. S. Carper, A. M. Myers & Co. 1, 2, 3, 4, 5 ..... Abd

Dry ..... 2
Abandoned ..... 5

CRAWFORD COUNTY.

Martin—C. Hadley, Kewanee Oil & Gas 1 ..... Dry
M. Newlin, Newlin Oil 1 ..... Dry
Asberry Pope, Hazlewood Oil 6 ..... Abd
F. M. Richart, Hazlewood Oil 1 ..... Abd
Robinson—E. E. Price No. 1, Ohio Oil 7 ..... Dry
Prairie—M. D. Dulaney, Arbett & Jessup 2 ..... Dry
Honey Creek—C. L. Petty, Ohio Oil 12 ..... Dry
C. L. Petty, Ohio Oil 13 ..... Dry
Frank Rich, Ohio Oil 2 ..... Dry
W. J. Jones, Phipps & Co. 1 ..... Dry
Wm. Wesley, C. Hunt & Co. 3 ..... Dry
Everett Parker, Phipps & Co. 2 ..... Dry
Ottis Darnold, Irwin & Co. 1 ..... Dry

Dry ..... 11
Abandoned ..... 2

LAWRENCE COUNTY.

Dennison—M. J. Murphy, Ohio Oil 4 ..... Abd
A. Jordan, Ohio Oil 10 ..... Abd
Lawrence—F. A. Boyer lot, Ohio Oil 1 ..... Abd
S. W. Severns, Ohio Oil 6 ..... Abd
Perry—R. L. Fitch, Curtis, Aiken & Co. 21 ..... Abd

Abandoned ..... 5

CLINTON COUNTY.

Irishtown—O'Neal, Ray Henley & Co. 1 ..... Dry

MARION COUNTY.

Centralia—Wm. Slater, Ohio Oil 2 ..... Dry
Sandoval—G. C. Wilson, Clear Oil 1 ..... Abd
Benoist, Southwestern Oil & Gas 20 ..... Abd

Dry ..... 1
Abandoned ..... 2

WABASH COUNTY.

Wabash—H. Buchanan, Associated Prod. 3 ..... Abd

## KANSAS.

MONTGOMERY COUNTY.

24-34-14, Dobson, Amherst O. & G. 9 ..... Dry
33-14-15, Leigrand, Molentsky & Samuel 1 ..... Dry
27-34-14, Walker, Pluto Oil & Gas 12 ..... Dry
16-34-14, Farlow, Williamson & Hill 4 ..... Dry
17-34-15, A. W. Schultis, W. G. Rowley 1 ..... Dry
10-33-17, Bellair, Atlantic Petroleum 6 ..... Gas
9-33-15, Grabbam, National Refg. 2 ..... Dry
9-33-15, Hinkley, Martin et al 2 ..... Dry
1-33-14, Green, S. C. Ewins 6 ..... Dry

Dry ..... 9
Gas ..... 1

CHAUTAUQUA COUNTY.

4-35-10, Ruhl, Denman Bros. 9 ..... Dry
34-34-11, Gardner, Bert Jones 1 ..... Gas
10-34-11, Jencke, Truby & Co. 1 ..... Dry
23-33-11, Thompson, P .O. & G. 1 ..... Dry

Dry ..... 3
Gas ..... 1

BUTLER COUNTY.

21-27-4, Sculley, Empire G. & F. 19 ..... Dry
4-29-4, Minor, Mid-Kansas 9 ..... Dry
3-26-5, Hart, Carter Oil 1 ..... Dry
6-25-5, Ramsey, Hazlett et al 4 ..... Dry
12-25-4, Schumacher, Sinclair Oil 1 ..... Dry
25-24-3, Nixon, Prairie O. & G. 1 ..... Dry
3-27-5, Covert, Wichita Ind. Oil 1 ..... Dry
3-26-5, Fullenwider, Brit. Am. Oil 1 ..... Dry
15-25-5, Nuttle, Derby et al 3 ..... Dry
7-25-5, Wilson, Empire G. & F. 16 ..... Dry
30-24-4, Finch, Monarch O. & G. 1 ..... Dry
5-25-5, Dunkle, Root & Davis 1 ..... Dry
6-25-5, Robinson, C. B. Shafer 17 ..... Dry
21-26-5, Koogler, Lewis & Page 3 ..... Gas
36-24-3, McCramer, Carter Oil 1 ..... Dry
7-25-5, Wilson, Empire G. & F. 34 ..... Dry
34-25-5, Hazlett, Gypsy Oil 36 ..... Dry
21-24-4, Nickerson, P. O. & G. 1 ..... Dry
6-25-5, Reamy, Pratt & Davis 1 ..... Dry
16-27-4, Sculley, P. O. & G. 18 ..... Dry
23-26-4, Bishop, Carter Oil 1 ..... Dry
34-26-5, Kennedy, H. Leonard et al 1 ..... Dry
9-29-4, Miner, Mid-Kansas O. & G. 8 ..... Dry
19-28-4, Wichita, Tulsa O. & G. 1 (salter) ..... Dry
17-29-4, Graves, Empire G. & F. 3 ..... Dry
17-28-4, Warner, Empire G. & F. 23 ..... Gas
21-27-4, Deal, McMann Oil 6 ..... Dry

Dry ..... 25
Gas ..... 2

WILSON COUNTY.

26-30-16, Phillips, Hale Gas 1 ..... Dry
1-29-15, Duvees, Hammie O. & G. 1 ..... Gas
6-29-16, Davis, Lucky John O. & G. 2 ..... Gas
24-28-15, Sprague, Pitus O. & G. 1 ..... Dry
27-29-16, H. H. Tusker, Eureka Gasoline 2 ..... Gas

Dry ..... 2
Gas ..... 3

FRANKLIN COUNTY.

10-18-21, Sentinel Oil & Gas ..... Dry
4-16-21, J. H. Milligan 1 ..... Dry
9-17-21, Sunflower O. & G. 1 ..... Dry
27-16-21, Galey & Ritchey 2 ..... Dry
12-18-21, Sawyer & Rowland 8 ..... Dry

Dry ..... 5

WILDCATS.

Osage County—
29-14-14, Bratton, Reuland & Regan 1 ..... Dry
7-17-16, Ind. Ter. Ill Co. 1 ..... Dry
Sumner County—
8-30-2, Latta, Duluth Oil 1 ..... Dry
Cowley County—
2-30-3, Daniels, Gypsy Oil 1 ..... Dry
32-30-4, Varner, Lucky V Oil 1 ..... Dry
6-31-4, Clark, Little P. Oil 2 ..... Dry
15-31-5, Cockran, Benedum & Trees 2 ..... Dry

30-31-4, Watson, Cowley Oil 1 ..... Dry
30-32-5, Wright, Commonwealth Oil 1 ..... Dry
13-35-6, McDermott, ndiahoma Refg. 1 ..... Dry
19-33-7, Radcliff, Grayson Oil 1 ..... Dry
8-34-4, Green, J. B. Lantz 1 ..... Dry
12-35-6, Miller, Standish Oil 1 ..... Dry
4-35-4, Denton, O & G Ex. 1..... Dry
17-35-7, Fall City, Standish Oil 1 ..... Dry
Ellsworth County—
16-14-7, Beaulme, Missen & Sim 1 ..... Dry
Lyon County—
14-19-12, Hohansee, Jones et al 1 ..... Dry

Dry Holes ..... 17

## OKLAHOMA.

### WASHINGTON COUNTY.

36-29-14, Erwin, E. Lawson 1 ..... Dry
8-28-15, Shaver, N. O. Bills et al 1 ..... Dry
17-26-12, Lahoma O. & G. 28 ..... Dry
32-29-13, Nally, Rialto Oil 1 ..... Dry
32-28-13, Parker, Swastika Oil 6 ..... Dry
7-26-14, Kimberly, Robertson et al 1 ..... Dry
36-29-14, Havin, Lawson et al 1 ..... Dry
5-28-15, Chestnut, Shufflin et al 5 ..... Dry
7-28-13, Tidal Oil 5, 6 ..... Dry
17-28-13, Ballard, Seamans Oil 1 ..... Dry
8-28-15, Shaver, Bills et al 2 ..... Dry
22-27-12, Osage, Wiser Oil 23 ..... Gas
32-29-13, Nally Rialto Oil 1 ..... Dry
17-20-11, Roanoke Oil 2..... Gas
35-27-12, Welch, Welch Oil & Gas 6 ..... Dry
17-26-15, Ballard, Seamans Oil 2 ..... Dry
22-28-13, Stevenson, National Oil & Gas 2 ..... Dry
32-28-13, Forester, Forester Oil 1 ..... Dry

Dry ..... 16
Gas ..... 2

### BIRD CREEK-OWASSO-DAWSON.

29-20-14, Frakes Bros., Fenton O. & G. 1..... Dry
25-20-14, Morgan, Henry O. & G. 1 ..... Dry
29-20-14, Frakes, Fenton Oil 1..... Dry
4-23-11, Kansas National Gas 2 ..... Gas
10-20-12, Devonian & Elliott 1 ..... Dry
20-20-14, Taylor, A. Lewis et al 1 ..... Dry
33-21-13, Weber, Buckeye Oil 1 ..... Gas
30-21-14, Leerskov, Owasso Gas 1 ..... Gas
31-27-17, Woods, Harris et al ..... Dry
11-26-16, Ross, Alluwo Oil 1 ..... Dry

Dry ..... 7
Gas ..... 3

### CHEROKEE SHALLOW SAND.

6-26-15, Moore, Hess & Bucher 1 ..... Dry
36-26-15, Hess & Bucher 1 ..... Dry
8-28-15, Shaver, H. C. Dills et al 2..... Dry

Dry ..... 3

### OSAGE DISTRICT.

31-27-9, Onhand, American Pipe Line 2..... Dry
10-25-9, Lynn, Pawhuska O. & G. 3..... Dry
5-21-10, Hun. Tsa. Me. Sinclair O. & G. 21..... Gas
17-20-12, Tidal Oil 12 ..... Dry
10-25- 9, Pawhuska Oil & Gas 24..... Dry
13-25-11, Barnsdall Oil 69 ..... Gas
10-25- 9, Pawhuska O. & G. 1 ..... Dry
19-24-12, Wolverine Oil 69 ..... Dry

Gas ..... 6
Gas ..... 3

### CLEVELAND, PAWNEE, MANNFORD, OLIVE.

23-21- 7, Devonian Oil 1 ..... Dry
18-21- 8, Cattlett & Davis 1 ..... Dry
20-21- 8, P. O. & G. 29 ..... Dry
26-20- 7, Waggoner, Jno. Markham, Jr. 3..... Gas
10-20- 8, Skinner, P. O. & G. 5..... Gas

Dry ..... 3
Gas ..... 2

### CUSHING-SHAMROCK.

3-18- 7, Wilson, Culbertson & Cobb 2..... Dry
16-17- 7, Manuel Sinclair O. & G. ..... Dry
16-18-17, Coker, McMan Oil 24 ..... Dry
3-18-17, Nettie, Producers Oil 3 ..... Dry

Dry ..... 4

### YALE, PAYNE COUNTY.

33-19- 7, Harje, Producers Oil 5 ..... Dry

Dry ..... 1

### TULSA-GLENN POOL-WICEY-KELLEYVIILE.

21-19-11, Cooper, J. F. Sweeney 1..... Gas
11-17-12, Glenn, Amn. O. F. of Okla. 2..... Dry
29-20-14, Dougherty, Fenton O. & G. 1..... Dry
18-17-12, Harwell, Seth Ely Oil 2 ..... Dry
24-17-12, H F Wilcox 1 ..... Dry
17-17-13, Young, Constantine 2 ..... Dry
29-17-14, McIntosh, R. D. Wallace ..... Dry
32-17-17, Allen, Braden et al 22 ..... Dry
25-17-14, Lewis, Blue Ridge Oil 4 ..... Dry
25-17-14, Lewis, Blue Ridge Oil 5 ..... Dry
2-17-12, Crosbie, Prod. O. & G. 20 ..... Dry
33-17-11, George Cinco Oil 11 ..... Dry
6-13-12, Newby, Kimbley Cook 4 ..... Gas
30-21-14, Leerskov, Owasso Gas 1 ..... Gas

Dry ..... 11
Gas ..... 3

### OKMULGEE-MORRIS.

35-14-13, Carston, Hume 5 ..... Dry
32-13-13, Bowman, Waiti Phillips et al ..... Dry
10-13-14, Lowe, Areo Oil Co. 4..... Dry
3-15-11, Grayson, Alvoid Oil 1 ..... Dry
6-15-12, Harjo, Minnehoma Oil 1 ..... Dry
1-14-11, Prairie O. & G. 1 ..... Dry
3-22-12, Marshall, Newman et al..... Dry
35-14-13, Jones, Hume 4 ..... Dry
18-14-14, Foster Cosden O. & G. L. 1..... Dry
33-15-13, Roberts, Barbara Oil 3 ..... Dry
23-15-13, Tiger Linn Field 1 ..... Dry
15-14-14, Francis, Selby O. & G. 4..... Dry
17-14-14, Berryhill, P. O. & G. 1 ..... Dry
21-14-14, Flint, Shuler & Georgel ..... Dry

Dry ..... 14

### BALD HILL-BOOCK SAND.

15-17-13, Johnson, Constantine 2 ..... Dry
6-16-13, Big Mound, L. Cowles, 1 ..... Dry

Dry ..... 2

### WAGONER, MUSKOGEE AND ROGERS COUNTIES.

11-13-15, Sevier, Mojave Oil 1 ..... Dry
1-14-15, Manuel Roby Oil 1 ..... Dry
17-14-14, Morton, Swift Trustees 3 ..... Dry
11-14-16, Lee, Beland O. & G. 2 ..... Dry
17-15-16, Banks, Peterson 4 ..... Dry
14-13-15, McMac Simons et al ..... Dry
31-15-16, Puncill, Caney River Gas 1 ..... Dry

Dry ..... 7

### HEALDTON, CARTER COUNTY.

13- 4- 3, Mobley, Michorn Oil 2 ..... Dry
25- 4- 3, Westheimer, Roxana Oil 3 ..... Dry
29- 2- 3, Morris, Gypsy Oil 2 ..... Gas

Dry ..... 4
Gas ..... 1

PONCA, NEWKIRK AND BLACKWELL.

25-29- 3, Osborne, Security Oil 1 ..... Dry
5-28- 1, House, Blackwell Oil & G. 3..... Dry
31-29- 1, Hobaugh, Junction Oil & Gas 1..... Gas
12-29- 3, Piper, Gold Dollar Oil 1 ..... Dry
30-29- 1, Hobaugh Junction O. & G. 1..... Gas
31-29- 1, Smith, Bermont O. & G. 1..... Gas

Dry ..... 3
Gas ..... 3

## KANSAS.

SUMMARY OF WELLS COMPLETED.

| | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Montgomery | 27 | 403 | 11 | 0 |
| Chautauqua | 12 | 278 | 3 | 0 |
| Butler | 154 | 38,302 | 32 | 0 |
| Wilson | 13 | 65 | 2 | 3 |
| Neosho | 32 | 480 | 3 | 0 |
| Allen | 41 | 615 | 0 | 0 |
| Franklin | 23 | 375 | 6 | 0 |
| Miami | 21 | 250 | 4 | 0 |
| Wildcats | 3 | 290 | 19 | 0 |
| Total | 326 | 41,058 | 80 | 3 |

## OKLAHOMA.

SUMMARY OF COMPLETED WORK.

| | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Tulsa | 127 | 2,282 | 22 | 2 |
| Osage | 60 | 4,500 | 9 | 3 |
| Cleveland | 36 | 3,600 | 4 | 0 |
| Cushing-Shamrock | 28 | 1,040 | 3 | 0 |
| Yale | 17 | 4,670 | 1 | 0 |
| Wagoner-Muskogee | 64 | 6.460 | 16 | 4 |
| Okmulgee | 40 | 2,050 | 10 | 1 |
| Kay | 11 | 4.250 | 10 | 1 |
| Healdton | 40 | 4,225 | 4 | 1 |
| Garfield-Noble | 11 | 4,280 | 0 | 0 |
| Wildcats | 0 | 0 | 0 | 0 |
| Total | 434 | 37,357 | 79 | 12 |

## MID-CONTINENT.

SUMMARY OF WELLS COMPLETED.

| | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Oklahoma | 434 | 37,357 | 79 | 13 |
| Kansas | 326 | 41,058 | 80 | 3 |
| Total | 760 | 78,415 | 159 | 16 |

## TEXAS PANHANDLE.

WICHITA AND WILBARGER COUNTIES.

Electra—
Castleberry, Producers Oil 1 ..... Dry
Fee, J. L. Powell 9 ..... Dry

Dry Holes ..... 2

CULBERTSON DISTRICT.

Burnett-Lloyd, Gulf Production 2 ..... Dry
Waggoner Bros., Culbertson et al 7 ..... Dry

Dry Holes ..... 2

BURKBURNETT.

Gillett, Magnolia Petroleum 9 ..... Dry
Dodson, Plains Oil & Gas 2 ..... Dry
Evans, Myers & Schultz 2 ..... Dry
Clark, Bi-State Oil & Gas 7 ..... Dry
Dodson, Texahoma Oil & Gas 2 ..... Dry
Roller, Johnson et al 4 ..... Dry
Powell, Pilot Point Oil 9 ..... Dry
George, Langford, Staley & Chenault 3 ..... Dry
Roller, Mann et al 15 ..... Dry
Cropper, Crowell & Connors 38 ..... Dry
Harden, Rosedale Oil 8 ..... Dry
Martin, Kuehn et al 1 ..... Dry

Dry Holes ..... 12

PETROLIA.

Skelly, Lone Star Gas 5 ..... Gas
Rollinger, Domestic Oil & Gas 1..... Gas

Gas ..... 2

STRAWN.

Fee, Texas & Pacific Coal 191 ..... Dry

Dry Holes ..... 1

WILDCATS.

Archer County—
White, M. R. Murphy 1 ..... Dry
McCall & Sanderson, Smith Oil 1 ..... Dry
Miller, Dallas-Wichita Oil 1 ..... Dry
Palo Pinto County—
Robinson, Texas & Pacific Coal 2 ..... Gas
Concho County—
Simms, T. B. Slick 1 ..... Dry

Dry Holes ..... 4
Gas ..... 1

## NORTH LOUISIANA.

Caddo—
33-21-16, Caddo Levee Board, Prod. Oil 52..... Dry
2-21-16, Harrell, Producers Oil 50 ..... Dry
35-21-16, McCue Levee Board, Prod. Oil 4..... Dry
De Soto—
25-13-12, McCormick-Nabors, Gulf R. D. 10..... Gas
Red River—
28-13-11, Nabors, Producers Oil B-1..... Dry
Bossier—
14-16-12, Gully, Gulf Refining 1 ..... Gas
5-15-13, State, Little & Burch 1..... Dry
3-14-11, A. N. Sample, Godfrey L. Cabot 1..... Dry
33-19-10, Richardson, Standard Oil 1 ..... Dry
45-21- 5, Crossett Lmbr., Newblock et al 1..... Gas
Harrison Co., Tex., Abney, Bell & Evans 1..... Dry
Jackson Co., Miss., Woodman, Atlas Oil 1..... Dry

Dry ..... 9
Gas Wells ..... 3

## NORTH LOUISIANA.

SUMMARY OF COMPLETED OPERATIONS.

| | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Caddo | 32 | 4,395 | 3 | 0 |
| De Soto | 5 | 95 | 0 | 1 |
| Red River | 4 | 120 | 1 | 0 |
| Bossier | 1 | 0 | 0 | 1 |
| Miscellaneous | 7 | 2 | 5 | 1 |
| Total | 49 | 4,612 | 9 | 3 |

## TEXAS-LOUISIANA.

SUMMARY OF COMPLETED WORK.

| | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Texas Panhandle | 80 | 5,322 | 20 | 3 |
| North Louisiana | 49 | 4,612 | 9 | 3 |
| Gulf Coast | 117 | 58,830 | 48 | 0 |
| Total | 246 | 68,764 | 77 | 6 |

# AROUND THE BELT

**New Wells, New Pipe Lines, New Contracts, Additions and Extensions. A Fund of Valuable News Gathered for the Journal Through Many Sources.**

## TRADE PERSONALS

It will be noted that the names appearing under the personal headings are exclusively those of men interested in the development of the natural gas field. Those wishing to learn of matters pertaining to men interested in the field of artificial gas should refer to THE GAS INDUSTRY magazine, published at 60 Pearl Street, Buffalo, N. Y., which devotes its columns entirely to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being specificially issued for its respective field. In this way each magazine renders 100% efficiency in the industry it covers.—**Publisher's Note.**

BOOTH, ARTHUR, ras recently become connected with the Burson Supply Company, Pittsburgh, as Vice-President. Mr. Booth was for some time purchasing agent for the Philadelphia Company, Pittsburgh.

BRADET, GLENN T., of Tulsa, is furnishing free of charge the gas required to fill the baloons entered for the annual balloon race which is a feature of the Muskogee State Fair.

BRANT, MELBURN, for some time connected with Rand, McNally & Company, is now on the staff of the Publicity Department of H. M. Byllesby & Company, Chicago.

CLYDE GAINES, COL., has been elected President of the Lincoln Oil & Gas Company, a new $1,000,000 concern at Winchester, Ky.

DIENER, EUGENE F., is President of the newly formed Diener Gas & Manufacturing Company of Dannville, Ont.

FRANKEL, MONROE J., is the new city inspector of gas and electricity at Louisville, Ky.

HECK, JOHN, has severed his connection as Manager of the Pioneer Gas Company, Cleveland, Okla.

HOFFMAN, W. H., of Syracuse, N. Y., has been elected President of the Drake Day Association for the new fiscal year of that organization.

LANE, F. H., who has been at the head of the Department of Examinations and Reports of H. M. Byllesby & Company, Chicago, is temporarily in charge of the Engineering and Construction Department, filling the vacancy created when W. R. Thompson, the former incumbent of the position, left to join the army.

MOORE, A. B., has accepted appointment as Manager of the Pioneer Gas Company, Cleveland, Okla.

MOORE, D. M., who left his connection with the Hope Natural Gas Company to take the officers' training course at Fort Benjamin Harrison, Ind., was recently commissioned as Captain.

PENN, J. R., recently severed his connection as President of the Illinois Pipe Line Company.

REISS, PAUL K., who acts as attorney for the Oklahoma Gas & Electric Company, Oklahoma City, Okla., recently accepted appointment on the Industrial Committee of the Chamber of Commerce of that city.

ROGERS, H. R., is the new Manager of the Logan Natura Gas & Fuel Company, Tiffin, Ohio.

SHAW, H. B., has been selected by the Doherty organization as head of the Doherty cadet schools.

## DECEASED

BLINN, ARTHUR M., of Erie, Pa., for the past ten years connected with the Pennsylvania Gas Company, died August 16th. For the past four years Mr. Blinn was resident manager for the company.

KENNEDY, FRANK J., of Wichita, Kan., head of the Kansas scouting department of the Empire Gas & Fuel Company, died recently in that city.

## PER CUBIC FOOT—RATES

It will be noted that the gas rates referred to below are those referring specifically to natural gas rates. Those desiring to learn of artificial gas rates should refer to THE GAS INDUSTRY, published at 60 Pearl Street, Buffalo, N. Y., which devotes its columns entirely to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being exclusively issued for its respective field, and each rendering 100% efficiency in the industry it covers.—**Publisher's Note.**

**INDIANA—Indianapolis**

Indiana's Public Service Commission, in a recent ruling, has granted the petition of the Central Indiana Gas Company for an increase in rates for mixed gas, becoming effective October 1. Under the new rates, the first 1,000 feet of gas will sell at a net rate of 90 cents; the next 4,000 feet, 75 cents; the next 95,000 feet, 50 cents; the next 1,900,000 feet, 40 cents, and all over 2,000,000 feet per month, 35 cents. The Central Indiana Gas Company furnishes gas for domestic and manufacturing purposes to the cities of Anderson, Marion, Elwood and Alexandria, and these are the places affected by the commission's ruling.

**KANSAS—Iola**

The City Commission Board has announced that after October 1st domestic rates will be increased to 30 cents per thousand. The former rate was 25 cents.

**LOUISIANA—New Orleans**

It is claimed that natural gas from the Terrebonne field at Houma can be supplied to big New Orleans steam users at a 10-cent rate and the smaller steam users at a 15-cent figure.

**OHIO - Berea**

**Marietta**

**ALBERTA - Medicine**

## INCORPORATED

**DELAWARE—Dover**

**[illegible]**

**KENTUCKY—Paris**

**[illegible]**

**[illegible]-Pamesville**

**ONTARIO - Dunnville**

## ITEMS OF FINANCE

**KANSAS - Independence**

**OHIO Cincinnati**

**Columbus**

**WEST VIRGINIA Fairmont**

## GENERAL

**ALABAMA [illegible]**

**ILLINOIS Crawford County**

**INDIANA—Anderson**

It is reported that the Central Indiana Gas Company is completing its arrangements for supplying natural and artificial gas mixed.

**Auburn**

The Indiana Fuel & Light Company has secured the contract for supplying gas to the Auburn Automobile Company for block testing.

**KANSAS—Augusta**

The Empire Gas & Fuel Company's No. 2 on the Riddle farm has a 7,000,000-foot gas well in No. 24, in section 8-28-4.

**Butler County**

It is reported that during July the Empire Gas & Fuel Company brought in four gas wells, having total production of about 21,225,000 cubic feet per day.

**Derby**

The Robbins Oil & Gas Company of Wichita has let a contract for a deep well on the Henry Robbins farm near here, and seven miles south of Wichita. The location is in the north half of the northeast of 28-28-1. The well will be drilled to a depth of 3,000.

**Hepler**

On the Inman farm, Pittsburgh operators brought in a well in Section 25-27-21, which will make about 20 bbls. of oil and 1,000,000 feet of gas. This lease was recently purchased for $2,000. It comprises a quarter section of land.

**Iola**

The city of Iola recently completed three good wells in its field southwest of the city.

**Paola**

On the J. L. Williams farm, in Section 16-17-23, Kline et al. completed a good gasser at a depth of 409 feet. The volume is estimated at better than 1,000,000 feet.

W. R. Stubbs et al. have a 1,000,000-foot gas well in their No. 2 on the Wessner lease, Section 6-18-21, at a depth of 332 feet.

On the Charles Prothe farm, in Section 18-18-24, the Missouri Oil & Gas Company brought in a 1,000,000-foot gasser at a depth of 460 feet.

**Wellsville**

The Sunflower Oil & Gas Company has a fair gasser in No. 1 on the C. E. Caylor lease, Section 27-17-21. The flow is estimated at about 500,000 feet.

**KENTUCKY—Barboursville**

The Cumberland Pipe Line Company, according to report, will extend its lines in Bath and Lee Counties. An expenditure of $500,000 will be called for.

**Grayson County**

A 2,000,000-foot gasser has been completed on the Hunter farm, south of Leitchfield.

**Williamstown**

The Martin Oil & Gas Company, recently incorporated, will start development work shortly in Eagle Creek, Grant County.

**Wolfe County**

The Green River Oil Company has a very good well on the Ness Terry farm on Holly Creek, near Hollonville, at a depth of 1,260 feet.

**MISSOURI—Columbia**

The Buffalo Oil & Gas Company has filed leases on 2,500 acres of land near this city.

**NEW YORK—Dunkirk**

The South Shore Gas Company has completed a good gas well on the Tinney farm on the East Lake road near Dunkirk. he company which supplies Dunkirk and several other towns in this section, recently drilled in two wells having an aggregate daily capacity of 10,000,000 feet, which are being reserved for winter use.

**Hornell**

Oil and gas prospectors are turning their attention towards this section of the country, due to the striking of a well on a farm near the village of Greenwood. Already many leases are being taken and there are indications that extensive prospecting will be undertaken.

The Empire Gas & Fuel Company of Wellsville, which supplies gas to the Hornell Gas Light Company, has started three more wells and and a number of independent producers have been securing leases.

**OHIO—Ashtabula**

A gas well producing about 2,000,000 cubic feet resulted from drilling a well for water by J. M. Poulton at a local chemical plant. The gas was found at a depth of 1,700 feet.

**Bolivar**

The Producers' Gas Company has completed a fair gas and oil well on the Andrew Miller farm.

**Coshocton County**

In Tiverton Township the Logan Gas & Fuel Company drilled a very light gas well on the Abe Simmons farm and a dry hole on the G. Hunter farm.

**Cuyahoga County**

In the Cleveland district, in Dover Township, the Logan Gas & Fuel Company got a well in a test on the G. W. Standen farm, in lot 66.

**Hocking County**

In Salt Creek Township the Ohio Fuel Supply Company drilled a big gas well in No. 2 on the G. B. Williamson farm, and made a location on the southwest corner of the W. H. Wigging farm, Section 23, and also on the William Hardin farm, Section 12. The Logan Gas & Fuel Company drilled a light gas well in No. 2 on the southwest corner of the G. W. Wilkinson farm, Section 13.

**Jackson County**

In Washington Township the Ohio Fuel Supply Company drilled a light gas well in a test on the L. Poland farm, Section 8, and has located No. 2 on the northeast corner of the same farm, as well as drilled a dry hole on the Jane Cox farm, in Section 13.

**Lancaster**

The City Natural Gas Works is drilling on the J. Messbarger farm, Section 26, Berne Township, Fairfield County.

**Mentor**

Considerable acreage has been leased near this point following the recent drilling in of a good gas well at Ashtabula. The East Ohio Gas Company is drilling test wells, as well as the Commercial Gas Company of Ashtabula.

**Perry County**

In Thorn Township and at the eastern edge of the gas belt, the Columbus Natural Gas Company drilled in a gas well on the W. Neel farm, Section 3, and has located No. 3 on the southwest corner of the same farm.

**Richland County**

In Monroe Township the Logan Gas & Fuel Company drilled in a good gas well in a second test on the northwest corner of the A. E. Peterson farm, Section 24, and a smaller gas well in No. 4 on the W. E. Applegate 160 acres, Section 3.

**Shreve**

A good well has been completed on the Smetzer farm, southwest of Shreve. The well is one of the best that has been drilled in the Shreve field.

**Springfield**

The Springfield Gas Company is fast completing its new 12-inch main between Selma and Cedarville. This line will give Springfield an added supply of gas.

**Toledo**

The Doherty cadet schools have become so far advanced that it has been found necessary to appoint a general head to supervise the work that is being done at the various schools. The organization has selected Dr. H. B. Shaw to occupy this post. Dr. Shaw will supervise the work done by the schools situated at Denver, Toledo, Partlesville, Okla., and Titusville, Pa., and will be in constant contact with the work being done by 100 cadets. Dr. Shaw as advisory board of the cadet schools will report to R. G. Griswold, chief technologist of the Doherty organization. It is expected that Dr. Shaw will make his headquarters at Toledo and from there take trips from time to time to inspect the work of the individual schools.

**Vinton County**

In Richmond Township the Ohio Fuel Supply Company has completed a gas well on the James Gibson farm. The well is reported to have a capacity of 25,0000,000 cubic feet a day.

In Richmond Township the Logan Gas & Fuel Company drilled a very light gas well in a second test on the southwest corner of the Ben Epptine farm, in Section 31. The Ohio Fuel Supply Company has half a dozen new wells near the sand. This company's test on the Josiah Nixon farm is a very light gas well. Its second well in the center of the Charles Sowers farm, Section 17, is a fair gas well, showing close to 1,000,000 feet. Its test on the northwest corner of the S. M. Woltz 15 acres, Section 15, is a large gas well, also its test on the center of the William Harper 40-acre farm, in Section 33. Its No. 1 on the W. A. Henderson 80-acre farm, Section 15, is a good gas well, as is its test on the southwest corner of the C. O. Martindill farm, Section 22. Its test in the center of the A. N. Burr farm, Section 25, is a dry hole.

In Harrison Township the Ohio Fuel Supply Company drilled a light gas well along the south line of the Asa Maxwell farm, Section 11, and a dry hole on the northeast corner of the Cora Harper farm, Section 24. The company abandoned a location on the southwest corner of the John Howell farm, Sectin 7, Elk Township, and is drilling 850 feet from the north line of the I. M. Lantz farm, Section 6.

**Wayne County**

In Clinton Township, the East Ohio Gas Company drilled a good gas well in a test on the southwest corner of the E. I. Craig 118 acres, Section 16, and found a dry hole in a test on the A. D. Smetzer 49 acres, Section 17.

**OKLAHOMA—Apache**

The Diamond Oil & Refining Company of Oklahoma City has taken over the holdings of the Polk & Clark Oil & Gas Company in this field.

**Cushing**

The Cosden Oil & Gas Company, it is reported, is installing a gasoline recovery plant here, and also at Stone Bluff, Okla.

The Creek County Gas Company has sold its properties to Henry L. Doherty & Company. The new owners will do extensive development work in the Shamrock field.

**El Reno**

The Oklahoma Gas & Electric Company will furnish gas for heating the public schools of El Reno and the county court house, beginning as soon as the gas heating installations have been completed. The company is making three short extensions of its gas mains to take on fifty-six new residence customers.

**Lawton**

Much difficulty is being experienced in securing pipe for constructing gas and oil lines. John C. Keys is negotiating for pipe to run a line from his big gasser to this city. It is planned to connect the line with Fort Sill also.

This town has granted a gas franchise to John C. Keys under which to distribute natural gas from the gas field located nineteen miles southeast of Lawton An expenditure of $400,000 will be called for.

**Loco**

According to report, the Lone Star Gas Company will build a natural gas recovery plant at this point. using the gas available with the completion of the new sixteen-inch main between Gainsville and Loco.

**Oklahoma City**

The Oklahoma Gas & Electric Company, it seems, will have no trouble in disposing of the preferred stock which it has planned to place on the market, since more than 1,200 inquiries were received by the company following the announcement that this stock would be for sale.

**Osage**

Foster & Davis, on the Sherman Riddle farm, in the St. Johns district, i nthe northwest corner of the northwest quarter of section 36-24-8, have a gasser of 4,000,000 feet capacity.

**Piedmont**

The Gossett Oil & Gas Company has made a location for a test well on its leases near this city. Fred M. Allison of Corsicana, Tex., will have charge of the work.

**Tulsa**

Natural gas is to be employed in lighting the streets of this city. The system is now being installed.

**PENNSYLVANIA—Butler**

Drake Day was observed here on August 27th in an impressive way. The formal exercises were held at Alameda Park, W. H. Hoffman of Syracuse, N. Y., President of the Drake Day Association, officiating. John H. Wilson of Butler was chief speaker. The subject of his address was "Drake, the Dreamer." The new officers of the Association are as follows: President, W. H. Hoffman, Syracuse, N. Y.; Vice-Presidents, W. H. Merritt, Bolivar, N. Y.; Geo. H. Torrey, Oil City; Alfred W. Smiley, Foxburg; W. L. Curtis. R. B. Stone, John Bird and Col. A. D. Burns, Bradford; John Younkins, I. L. McBride, W. F. Graham and Mayor J. H. Heineman, Butler; Gilmore S. Bussell, Olean, N. Y., and Hosea Paul, Cleveland, Ohio; Secretary, E. C. Bell, Titusville!; Treasurer, John H. Scheide, Titusville; Directors, Luke B. Carter, J. M. Bloss and F. F. Murray, Titusville; P. C. Boyle, Edward R. Boyle and A. B. Moore, Oil City.

**Candor**

The deep well which has been drilling here by the People's Natural Gas Company has been abandoned at a depth of 7,245. This well cost the owners, it is claimed, more than $500,000. Drilling operations were started on November 7, 1911. The drillers have encountered much difficulty, having a large number of fishing jobs. At one time there were three strings of tools in the hole together. From 4,850 feet to 6,600 fet pockets of gas blew the tools up in the hole and kinked the cable, causing it to break. During the drilling period ten cables and three sand lines were used, all of the cables except the first one having been made to special order. Up until the present well was drilled, the deepest well in the world was located nar Luchow, Germany. The depth of the latter well was estimated at 7,239 feet.

**SOUTH DAKOTA—Camp Crook**

A good flow of gas was found at a depth of 560 feet in a well drilled by the Dome Oil Company on Little Beaver Creek, forty-five miles north of Camp Crook.

**TEXAS—Dallas**

About 9,600 acres have been added by the Lone Star Gas Company for gas development. These additional leases are on Indian lands.

**Stephens County**

The Texas & Pacific Coal Company found 2,500,000 cubic feet of gas in their No. 2 well at 1,740 feet.

**WEST VIRGINIA—Jackson County**

On Mill Creek, Washington district, G. L. Cabot drilled a test on the B. F. Thomas farm through the Big Injun sand. It is a fair gasser. In the same district, the United Fuel Gas Company is drilling and starting a dozen or more test wells.

**Jackson County**

On Elk Forks, Washington district, the United Fuel Gas Company completed a test on the I. N. Harpold farm. A gas pressure was developed in the Big Injun sand, estimated to be good for 2,500,000 feet a day.

**Lewis County**

In Freeman's Creek district, the Philadelphia Company completed a test on the H. E. Hurst farm, getting a fair gasser in the Big Injun sand.

**Marshall County**

On Bens Run, Liberty district, the Manufacturers Light & Heat Company completed a test on the E. Turner farm. It is a light gasser in the Gordon.

**Pruntytown**

A gasoline recovery plant is being erected here by the Hope Natural Gas Company.

**Wetzel County**

On Long Drain Run, Church district, the Carnegie Natural Gas Company has a Big Injun sand gasser at its test on the Frank Hupp farm. On Fishing Creek, Grant district, the same company completed a test on the C. Brookover farm. It is a gasser in the Maxon sand. On Long Drain Run, Church district, the Philadelphia Company's No. 2 on the G. S. Higginbotham farm is a gasser in the same formation.

On Fishing Creek, Grant district, the Philadelphia Company got a light Maxon sand gasser at a second test on the Christie Higginbotham farm. On Long Drain Run, the Hope Natural Gas Company drilled its test on the Wesley Roberts farm through the Maxon sand and found it barren. It is now drilling to the lower sands.

**Williamson**

The United Fuel & Gas Company, it is said, will extend its mains in this city.

**NEW MEXICO—Artesia**

Contracts have been let by the state for the drilling f twenty test wells in this section. The Tolec Oil Company will do he drilling.

**ONTARIO—Dunnville**

The Diener Gas & Manufacturing Company, recently formed, will shortly begin drilling operations on its property in this field.

**Elgin County**

The Richmond Gas & Oil Company of Chatham, drilling on the James farm, south of Richmond, finished No. 5, good for 1,000,000 cubic feet a day.

The Dominion Natural Gas Company also completed a good producing well in the same field. In the Vienna field the Dominion Natural Gas Company has finished a gasser good for 250,000 cubic feet.

## BAKING BY GAS FIRE.

The need for means whereby to bake not only bread, pies, cakes, etc., but also cores for foundry use, certain requirements in the manufacture of munitions, meat loaf, etc., etc., is well provided in both cabinet and reel (revolving) form, by the Meek Oven Manufacturing Company, of Newburyport, Mass. This concern also manufactures bakers' fryers, and steam tables, thus covering a line of requirements that should be known through the gas company to every available prospect.

While it is true that comparatively few of the natural gas companies actually display, or canvass for the sale of gas burning appliances, every gas manager should be well advised personally regarding the equipment available in the field to produce light, heat, and power, where gas is the element required.

We have met gas managers who knew very little, in some cases almost nothing, regarding the appliances used by the public whereby their business is made a success. In other words, we have known gas managers who were willing to simply sit in the office, accept orders for meters, wrestle with the city council, be able to tell how many B. t. u.'s could be found in their gas, and be able to touch on a few other subjects, without ever a thought to that end of the business wherein lies the money, and through which either waste or conservation may be accomplished by virtue of encouraging in the community the use of well and scientifically devised equipment, versus wasteful gas appliances.

In this article we direct attention, as we have said, to revolving (reel) ovens, stationary ovens, bakers' fryers, and steam tables. Will you take our suggestion, and coach up on a knowledge of these appliances?

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The following new forms have recently been issued by the Ingersoll-Rand Co., 11 Broadway, New York.

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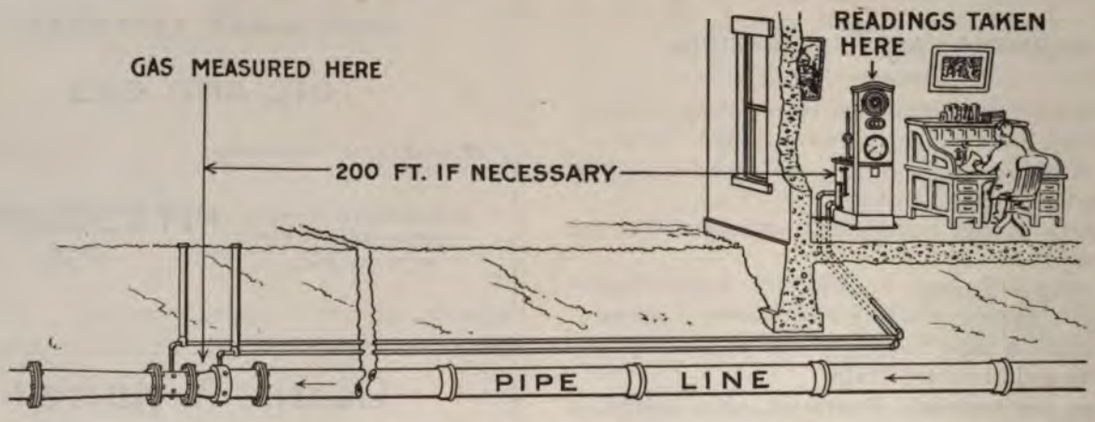


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LUCIUS S. BIGELOW,
Signature of editor, publisher, business manager or owner.

Sworn to and subscribed before me this 11th day of October, 1917.

E. L. REED,
Notary Public in and for Erie County.

Form 3526 c5-6012.

(My commission expires March 30th, 1918.)

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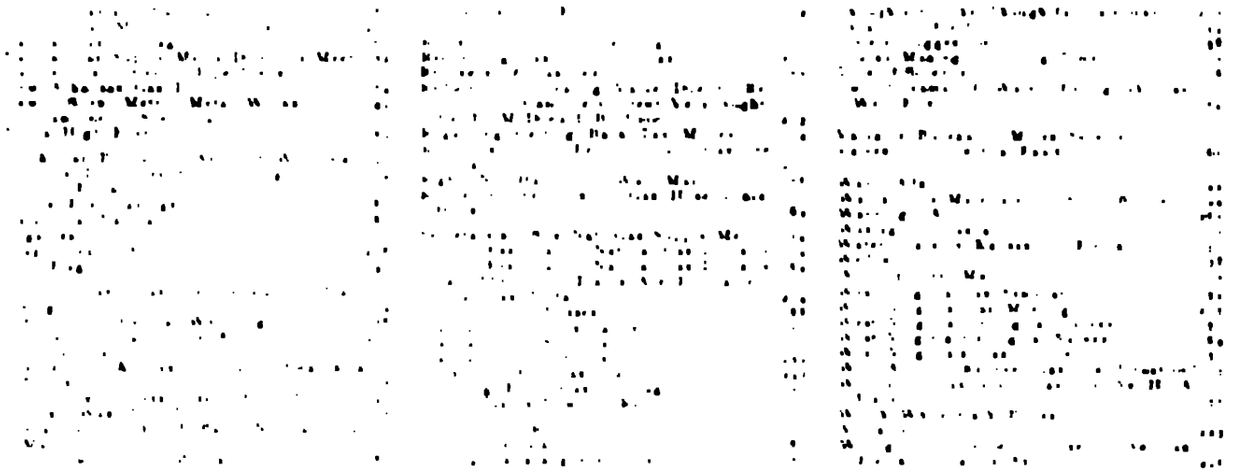

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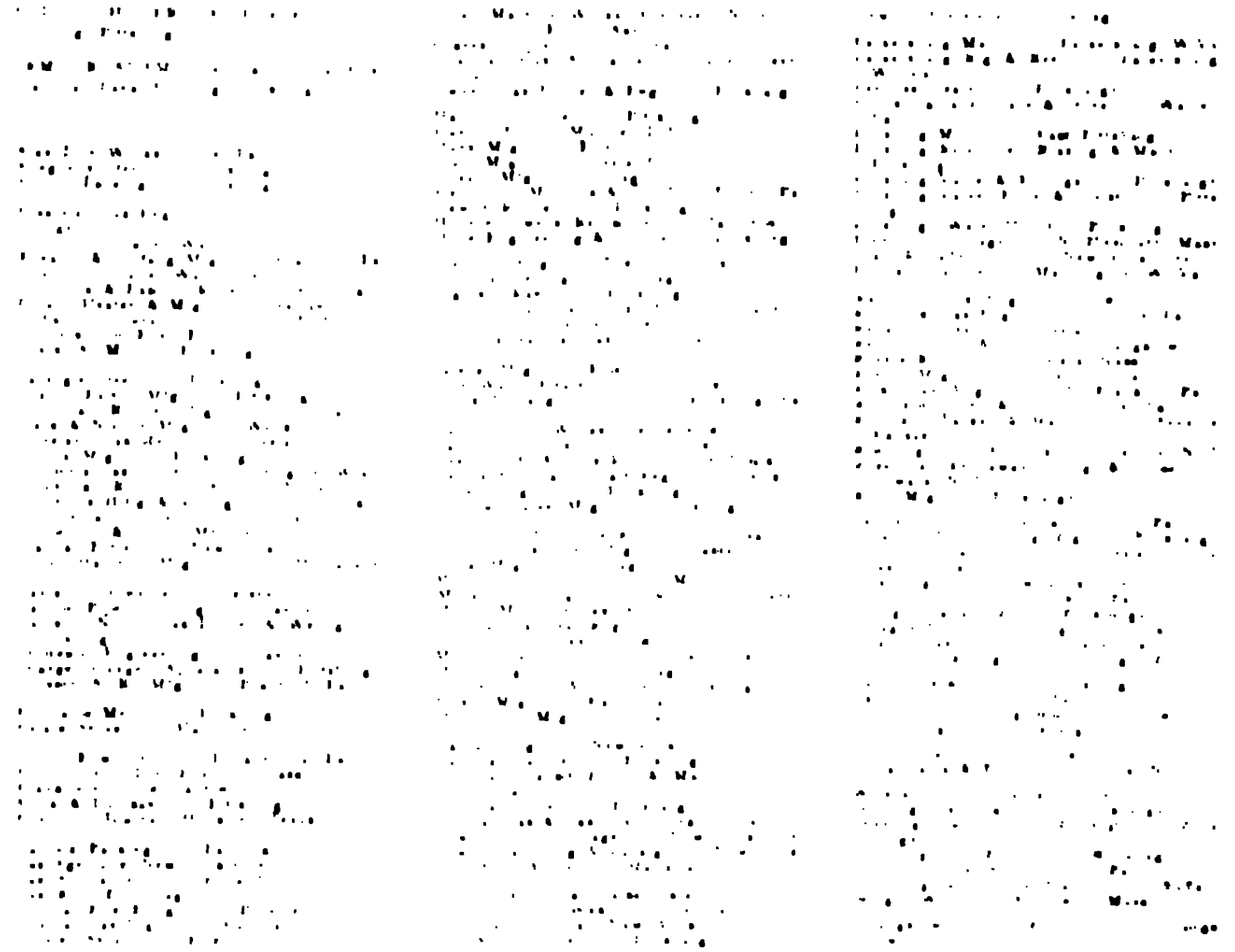

# The Devil Has Resigned!

"To William von Hohenzollern, King of Prussia,
Emperor of all Germany and Envoy Extraordinary of Almighty God:

The Infernal Region,
June 28, 1917.

"My Dear Wilhelm:

"I can call you by that familiar name for I have always been very close to you, much closer than you could ever know.

"From the time that you were yet an undeveloped being in your mother's womb I have shaped your destiny for my own purpose.

"In the days of Rome I created a roughneck known in history as Nero; he was a vulgar character and suited my purpose at that particular time. In these modern days a classic demon and efficient supercriminal was needed and as I know the Hohenzollern blood I picked you as my special instrument to place on earth an annex of hell. I gave you abnormal ambition, likewise an over supply of egotism that you might not discover your own failings; I twisted your mind to that of a mad man with certain normal tendencies to carry you by a most dangerous character placed in power; I gave you the power of a hypnotist and a certain magnetic force that you might sway your people. I am responsible for the deformed arm that hangs helpless on your left, for your crippled condition embitters your life and destroys all noble impulses that might otherwise cause me anxiety, but your strong sword arm is driven by your ambition that squelches all sentiment and pity; I placed in your soul a deep hatred for all things English, for of all nations on earth I hate England most; wherever England plants her flag she brings order out of chaos and the hated Cross follows the Union Jack; under her rule wild tribes become tillers of the soil and in due time practical citizens; she is the great civilizer of the globe and I HATE HER. I planted in your soul a cruel hatred for your mother because SHE was English and left my good friend Bismarck to fan the flame I had kindled. Recent history proves how well our work was done. It broke your royal mother's heart, but I gained my purpose.

"The inherited disease of the Hohenzollerns killed your father, just as it will kill you, and you became the ruler of Germany and a tool of mine sooner than I expected.

"To assist you and farther hasten my work I sent you three evil spirits, Nietzsche, Treitschke and later Bernhardi, whose teachings inflamed the youths of Germany, who in good time would be willing and loyal subjects and eager to spill their blood and pull your chestnuts, yours and mine; the spell has been perfect —you cast your ambitious eyes toward the Mediterranean, Egypt, India and the Dardanelles and you began your great railway to Bagdad, but the ambitious archduke and his more ambitious wife stood in your way. It was then that I sowed the seed in your heart that blossomed into the assassination of the Duke and his wife, and all hell smiled when it saw how cleverly you saddled the crime on Serbia. I saw you set sails for the fjords of Norway and I knew you would prove an alibi. How cleverly done, so much like your noble grandfather, who also secured an assassin to remove old King Frederick of Denmark, and later robbed that country of two provinces that gave Germany an opportunity to become a naval power. Murder is dirty work, but it takes a Hohenzollern to make away and get by.

"Your opportunity was at hand; you set the world on fire and bells of hell were ringing; your rape on Belgium caused much joy, it was the beginning, the foundation of a perfect hell on earth, the destruction of noble cathedrals and other infinite works of art was hailed with joy in the infernal regions. You made war on friends and foe alike and the murder of civilians showed my teachings had borne fruit. Your treachery toward neutral nations hastened a universal upheaval, the thing I most desired. Your under-sea warfare is a master stroke, from the smallest mackerel pot to the great Lusitania you show no favorites; as a war Lord you stand supreme, for you have no mercy; you have no consideration for the baby clinging to its mother's breasts as they both go down into the deep together, only to be torn apart and leisurely devoured by sharks down among the corals.

"I have strolled over the battlefields of Belgium and France. I have seen your hand of destruction everywhere; it's all your work, super-fiend that I made you. I have seen the fields of Poland; now a wilderness fit for prowling beasts only; no merry children in Poland now; they all succumbed to frost and starvation— I drifted down into Galicia where formerly Jews and Gentiles lived happily together; I found but ruins and ashes; I felt a curious pride in my pupil, for it was all above my expectation. I was in Belgium when you drove the peaceful population before you like cattle into slavery; you separated man and wife and forced them to hard labor in trenches. I have seen the most fiendish rape committed on young women and those who were forced into maternity were cursing the father of their offspring and I began to doubt if my own inferno was really up to date.

"You have taken millions of dollars from innocent victims and called it indemnity; you have lived fat on the land you usurped and sent the real owners away to starvation. You have strayed away from all legalized war methods and introduced a code of your own. You have killed and robbed the people of friendly nations and destroyed their property. You are a liar, a hypocrite and a bluffer of the highest magnitude. You are a part of mine and yet you pose as a personal friend of God. Ah, William, you are a wonder. You wantonly destroy all things in your path and leave nothing for coming generations.

"I was amazed when I saw you form a partnership with the impossible Turk, the chronic killer of Christians, and you a devout worshipper in the Lutheran church. I confess, Wilhelm, you are a puzzle at times. A Mohammedan army, commanded by German officers, assisting one another in massacreing Christians is a new line of warfare. When a Prussian officer can witness a nude woman being disemboweled by a swarthy Turk, committing a double murder with one cut of his saber, and calmly stand by and see a house full of innocent Armenians locked up, the house saturated with oil and fired, then my teachings did not stop, with you, but have been extended to the whole German nation. I confess my Satanic soul grew sick and there and then I knew the pupil had become the master. I am a back number, and my dear Wilhelm, I abdicate in your favor. The great key of hell will be turned over to you. The gavel that has struck the doom of damned souls since time began is yours. I am satisfied with what I have done; that my abdication in your favor is for the very best interests of hell—in the future I am at your majesty's service. Affectionately and sincerely,

LUCIFER H. SATAN."

—From St. Paul Dispatch, Sept. 28th, 1917.

Louis Syberkrop, of Creston, Iowa, has acquired much fame in recent weeks as author of a satire on Kaiser Wilhelm. Requests from Mr. Tumulty, Secretary Daniels, Mr. Roosevelt, and people in many states of the Union and Canada have asked for copies. We reprint it as it is a clever production.

## YOUR FLAG AND MY FLAG.

"Your flag and my flag and how it waves today,
O'er your land and my land and half the world away;
Rose red and blood red its bars forever gleam,
Snow white and soul white, the good forefathers' dream;
Sky blue and true blue with stars that shine aright,
The glorified guidon through the day, the shelter through the night.
Your flag and my flag and oh! how safe it holds
Your land and my land secure within its folds.
Your heart and my heart beat quicker at the sight,
Sun kissed and wind tossed, the blue, the red, the white.
The one flag, the great flag, the flag for me and you
Glorified all else beside, the red, the white, the blue."

—Major James A. Moss, U. S. A.

# FROM THE PEN OF THE EDITOR

## TEXAS GAS MEETING.

THE Texas Gas Association held its second annual meeting in Dallas, Tex., October 16th and 17th. The well prepared program of papers was as follows:

"Laying of Gas Mains and Installing Distribution Systems for Natural and Artificial Gas," by Mr. J. S. Connelly, President Atlanta Gas Co.

"New Business," by Mr. S. L. Barrows, Beaumont Gas Co.

"Oxwelding in Gas Main Construction," by Mr. M. S. Clarke, Texas Representative Oxweld Acetyline Co., Chicago.

"The Conservation of Natural Gas," by Mr. R. L. Underwood, Manager Groesbeck Gas Co.

"Need for Higher Rates by Public Utilities," by Mr. John Nickerson, Jr., St. Louis.

"Water Heaters as Business Getters," by Mr. F. S. Kune, Pittsburg Water Heater Co., Dallas.

The banquet was held at the Adolphus Hotel.

While the Texas Association is quite new in the field, it is doing excellent work.

C. H. Seidenglanz, the Secretary-Treasurer, has done splendid work as the active executive assisting M. T. Walker, the chief executive, or president, whose year has shown telling results.

The new Officers of the Association are as follows:

President—Mr. F. J. Storm, Amarilo, Texas.

First Vice-President—Mr. W. H. Clifford, Palestine, Texas.

Second Vice-President—Mr. W. H. Sedberry, Marshall, Texas.

Secretary-Treasurer—Mr. C. H. Seidenglanz, Dallas, Texas.

The new Directors are:

Mr. P. E. Nicholls, Galveston, Texas.

Mr. J. S. Connelly, Atlanta, Texas.

Mr. A. T. Knies, Austin, Texas.

Mr. C. B. McKinney, Denison, Texas.

The time and place of next meeting is Ft. Worth, the second Tuesday and Wednesday in September, 1918. The Association voted to affiliate with the American Gas Institute and appointed Mr. M. T. Walker, past President, as the Association's Director at the Institute.

A resolution was unanimously passed pledging the united efforts and support of the Association to the President of the United States and the Governor of Texas, also endorsing Second Liberty Loan.

The meeting was well attended, twenty new members having been added since the first Convention a year ago.

## COURT DECISION IN THE MATTER OF RATES.

THE Superior Court of Pennsylvania, reversing the order of the Public Service Commission on Rates and Valuation in the case of the Ben Avon Borough, versus the Ohio Valley Water Company, gave a ruling which is of interest to public utility companies in general, and to holders of utilities securities. The following paragraphs are quotations taken from the decision handed down by the Court:

"In determining the questions of rate-making value and rates, the Commission is given extensive powers to be exercised after a thorough consideration of the business from the most accurate knowledge obtainable. The questions present matters of such grave importance as to call for the most careful consideration by the Commission designated by the Legislature to act. A rate that is too low may deprive the members of the corporation of property that cannot be returned, and if too high, the public is unjustly deprived of property. Rates should not be speculative or put in operation for the purpose of determining whether too low or too high. Before that question can be answered, a loss of property might result. The business of rate-making should not be an effort to impose on either the public or the corporation; and, while it may be true that some corporations in the past have acted unfairly to the public, that would not justify a confiscatory valuation by the Commission, or a lowering of rates causing a confiscation. Rate-making contemplates fair dealing between the company and the public. When the question of rates to be fixed is before the Commission, the value of the whole property and the net return thereon must be considered."

* * *

"The public is entitled to be served at reasonable rates on the value of the property used in the public service. The company is entitled to a rate that will allow it a fair return. To induce investment and the continuance of capital, there must be some gain commensurate with that of any other business. The mere assurance that the investment will not be confiscated will not suffice."

* * *

"The value of he property is to be determined as of the time when the inquiry is made regarding the rates. If the property, which legally enters into the question of the consideration of rates, has increased in value since it was acquired, the company is entitled to the benefit of such increase."

* * *

"Original cost, assuming that the books of old concerns correctly recorded all of the items that went into cost, which would be quite rare, would not take into consideration many of the incidental features of ex-

pense which companies must meet, nor would it make any allowance for an 'increase in value' in the physical property."

* * *

"The present value represents more than the cost of reproduction, which is the present day cost of the real estate, machinery, equipment or plant, labor of installing or construction, and putting in place to perform its various functions."

* * *

"A company does not receive a fair valuation when the cost of its physical property alone is considered. Nor do we wish to be understood as saying that the exchange value used in condemnation and sale should be the basis upon which the rate should be determined. In this latter value, the income is assured and its continuance enters into and affects it. In exchange or selling value, the ability of the utility to produce earnings is a large factor, if not the controlling factor; but such value of necessity takes into consideration the monopolistic feature of a utility. It produces earnings by virtue of the commodity it sells; its position in public life to command sale from the compulsory aspect which causes the inhabitant to buy, whether he will or not. These companies secure an added value from these causes."

* * *

"Depreciation, though largely theoretical in its nature, which is allowed on the reproduction cost seems to have a fixed place in valuation. If, however, replacements and renewals are amply provided for and made, depreciation only to a very small extent takes place. If, through depreciation, the value of the property is largely reduced, the securities which were placed thereon may be unnecessarily reduced in value. As these charges withdraw from the rate-making base, such depreciation naturally effects a purchase of a part of the property for the consumer, a thing never contemplated. A rate for renewals and replacements should be provided and expended for that purpose; when that is done, as is the custom in every utility concern, depreciation is a very small fractional per cent. This should be placed in a reserve and it, with renewals and replacements, are properly allowable in fixing a schedule of rates."

## DEATH OF JOSEPH REID.

THE gas and oil fraternity will grieve to learn of the death of Joseph Reid, founder and president of the Joseph Reid Gas Engine Company of Oil City, Pa., at his home in that city on October 23rd. Mr. Reid was born in Maybole, Ayreshire, Scotland, November 11, 1843. At the age of twenty he left his native land to locate in Montreal, Canada, later coming to this country. Climbing steadily year by year the ladder of fortune, at the time of his death his name was known internationally in the field to which the activities of his life were devoted.

## GAS FROM STRAW.

HERE again is that prairie straw. Last time a different field was featured as open to it. It will get there eventually.

Prof. R. D. McLaurin, of the Department of Chemistry of the University of Saskatchewan claims to have invented a process whereby gas for power purposes can be extracted from straw, the waste straw of the prairie provinces being utilized.

According to a description of the process recently made public by Prof. McLaurin, gas may be manufactured from straw and other celulose material, with equipment consisting of a retort, scrubber, and holder, the cost of the entire installation on a farm costing, he figures, not over $500.

The straw is compressed into bales the size and shape of the retort. The bale is placed in the retort and the doors clamped in place.

After the first operation, when the straw is used as fuel, the carbonizing process is carried out by means of the gas already generated. The gas begins coming off at a temperature of about 200 degrees. Centigrade and reaches its maximum between 500 and 600 degrees Centigrade. The gas may be removed from the straw in 30 to 45 minutes, and about 30 per cent. of the total volume of the gas is used in the process of carbonization. Approximately 12,000 cubic feet of gas are generated from one ton of straw. The calorific value of the gas is about 400 B. t. u.'s. The gas, when generated in the retort, passes first into a scrubber, a metal cylinder 4 feet by 1½ to 2 feet and then into a gasometer.

## EXCUSABLE WASTE OF GAS.

OUR contemporary, "The Oil and Gas Journal," usually a staunch upholder of conservation in the gas field, gloats editorially over the waste of gas occasioned by the loss of a number of Zeppelins due to recent French activity. What do we care for German gas? "We should worry."

## SAVES 50% DITCHING OUTLAY.

THE power back of the pipe-pusher called the "Easy," which is manufactured in David City, Neb., is such that in distances of 50 feet or more, almost absolute accuracy has been attained in the outcoming of the pipe at point predetermined.

This is not a device requiring many hands, in fact we are told that one man can easily operate the device which weighs about 100 lbs.

The advance work is done by what is called a "pilot." This is projected at the forward end of the pipe through the soil and is forced onward to point of destination.

Any soil that can be shovelled by a man ditch digger, is soft enough for this method, so it is stated.

# *Effect of Publicity*

***The Subject of Publicity on Business Relations Ably Handled. Discussion by Members of Natural Gas Association Appended.***

By JOHN W. LANSLEY.

THE best evidence that "Publicity" has made good in public utility service is found in the fact that it has become firmly established as an important subject for discussion at conventions of this character. Recognition of the power of publicity has come more slowly in the natural gas business than in some others, but it is here at last. There are few among us who still doubt the efficacy of judicious, truthful and well prepared advertising.

For a long time we clung tenaciously to the error that low prices would do all the talking necessary to sell gas and hold the business in its rightful place in public esteem. With some surprise, we recently awoke to the discovery that the public does not always recognize a low price when it sees it, that people must be told things before they can be expected to believe them, that they must know before they can have confidence, and that business relations without confidence are certain to be unsatisfactory if not unprofitable.

Assuming that the primary general object of publicity in the natural gas business is to inspire confidence in the public mind, we have full economic justification for advertising expense within reasonable bounds. The kind of business relations existing between natural gas companies and their customers measure the commercial value of the publicity department's work and the dimensions of the task to be performed.

The natural gas company engaged in selling gas to the public is, first of all, amenable to state regulation as to its rates, character of service, and often its financing operations. This regulation is the outgrowth of public opinion. To whatever extent it is just and fair or unjust and unfair, to exactly that same extent the business has acquired or neglected to acquire the confidence of the public, its customers.

Regulatory laws are often fairly and justly interpreted by Courts and Commissions, but inspection of the literal provisions of many of these laws points clearly to lack of confidence on the part of the public. Lack of public confidence results from lack of public knowledge, and lack of public knowledge is due to improper or neglected publicity.

Attacks are made indiscriminately upon rates that are just and reasonable. Low prices are no more immune against challenge than high prices. These attacks come out of public ignorance of the cost, hazard and difficulty of producing, transporting and distributing gas. The persons who institute them, being themselves ignorant of the business, as a rule, are merely the instruments of self-appointed champions of the popular will.

Complaint of the character of service, usually the result of the company's inability to meet an overwhelming demand in winter, is the natural expression of people undergoing discomfort without fully understanding the conditions with which the companies are beset.

Interference with necessary financing is the consequence of a mistaken notion that a capital stock or bond issue is a basic element in determining what is a fair and reasonable price for the service rendered.

These three classifications embody practically all the troubles that come under the head of Public Relations. If such troubles are due to lack of knowledge on the part of the public, it follows that they can be minimized or reduced by proper publicity.

The question of what is proper publicity for any particular company, or for the business at large, is purely speculative, except as experience may have disclosed the effects of certain efforts in specific instances. It is a problem that would have been worthy of the wisest consideration of a well advertised ancient ruler of renown. Solomon of old was not noted for keeping his affairs to himself, and yet a great many people have been led to believe that he knew his business.

How to go about the work of publicity designed to inspire confidence and improve the business relations existing between natural gas companies and their millions of patrons is of great and ever-growing importance to producing, transporting and distributing companies alike. It is a comparatively new and still somewhat strange field of labor for the financier, the miner, the engineer and the public utility expert. Experience costs money, and mistakes may be serious, if not fatal. The oldest hand tackles the job with least assurance. Every situation demands a different formula or a new plan, yet the continuous effect of all good publicity must be consistent and unvarying.

Any deviation from the exact truth in advertising or canvassing, any error in the logic or argument, any "break" that indicates ignorance of the business, is fatal or injurious to the effort. It is necessary, therefore, to place this work in the hands of those who have

the faculty of understanding human nature and the wisdom to be patient with it, who are familiar with the business and competent to judge how much or how little should be said on any subject to give it proper relative importance, who have had sufficient experience and training to enable them to write clearly and expressively. Literary frills will not be needed. It is the plain statement of fact and simple argument that carry most weight and are most likely to inspire confidence in the mind of the reader.

There are various vehicles for publicity, but experience has taught many of us that the daily newspaper is the best and most economical of all in view of the result to be obtained. Practically all the large public service corporations, from the railroads down, are now using advertising space in the daily papers freely to present their aims and claims to the public.

That an increasing number of companies are pursuing this method to gain and hold public confidence, and that the amount of expenditures for this purpose is apparently growing, indicates that the effect of such publicity is worth the time and money spent upon it.

Any fixed policy of publicity, such as determines the character and cost of the work to be done, must be decided upon in advance according to the conditions that exist in the locality to be covered. Attempting to lay down permanent rules for advertising would only invite failure. To try to prepare advertising to fit different cities served by different companies under different conditions would be as futile as for a lawyer to make the same plea to every jury in every case.

If we believe that the effect of publicity is to improve our business relations with our customers, upon whom we depend for our revenues and who dictate the laws under which we must operate, then the proposition is important enough to merit our best attention in each particular case. No doubt, everyone present who has had experience with publicity in the public utility business could relate instances of beneficial results, but such instances are valuable chiefly as testimony in favor of the general policy and can seldom be used to the best advantage in other situations.

The writer has had some experience in preparing publicity matter to meet or anticipate conditions arousing or likely to arouse public complaint. In every case the daily newspaper has been sufficient as a medium through which to reach the ear of the public. In every case it has been found advisable to discard the exact forms of previous undertakings, make a new diagnosis and write a different prescription; as in medicine, much depends upon a true diagnosis. In every case the public has been found willing and anxious to hear the company's argument, though it might be directly contrary to the public opinion previously held. In every case it has been possible to make a truthful, candid, convincing statement of the company's side without exposing any mysterious inner secrets of the business. In every case of publicity designed to improve our business relations, we have found the expenditure profitable, I make bold to assert, though this latter statement is but the opinion of one who may justly be termed a prejudiced witness.

It is easy to write interesting stories of fact about the natural gas business. There is no more romantic industry than the production of this God-given fuel from the depths of the earth. Then why not tell the public, tell them repeatedly until they are taught, about the drilling and maintenance of gas wells in the fields from which their supply is drawn? Do you suppose any gas consumer ever gives thought to the millions of dollars fruitlessly invested in dry holes and lease rentals throughout the world, or realizes that these fruitless endeavors measure the hazard of the producing business and are truly a part of the actual investment involved in natural gas service? If no one gives the natural gas business credit for this investment—and you are hereby advised that no one does—whose fault is it?

Among the greatest and most modern transportation agencies in the world are the pipe lines which carry natural gas from the wells to the cities served, sometimes many hundreds of miles distant. Then why not speak of the gigantic problems met in financing, constructing and maintaining such enterprises? How many gas consumers know that the size of a pipe line is limited by their own ability to pay, in the price of gas, a fair return upon the investment? How many know that compressors are necessary to transport gas and are not designed to pump air through the meters? As an amateur student of public opinion, the writer respectfully repeats that public ignorance on these points and scores of others is abundant.

The business of distributing natural gas to the people of those communities fortunate enough to be within the zone of its economical delivery is an exacting and complicated service. The margin of profit per cubic foot upon which the distributing company must operate is usually very small. It is only through heroic effort and extreme skill and efficiency that the average distributing company can earn a fair return. Then why not take our customers into our confidence and let them know what they are getting and how they are getting it?

That the public generally believes that natural gas has less heating power than artificial gas, that it believes that large consumers are favored at the expense of small consumers, that it often believes the company adulterates the gas, "fixes" the meters, falsifies the bills—all this error and much more of a similar nature is an indictment against us for neglecting to look after our business relations in a proper manner.

Blaming the public for being suspicious of those things about which it knows nothing is condemning good business sense. The consuming public is neither less honest nor more honest than the producing public. If popular opinion is unfair to natural gas companies, if municipal restrictions are unfair, if state regulatory laws are unfair, then all this unfairness must be due to lack of information, which is only another way of

saying lack of publicity. If the effect of publicity is to induce fairness in trade between individuals, it is a vital element in business life, its cost a legitimate and necessary operating expense, its neglect an evidence of poor management.

Discussion of the minor details of publicity intended to improve the business relations of gas companies and the public and to promote confidence and harmony, would not lead us anywhere in a gathering such as this. It is doubtful whether such a discussion would accomplish anything in a convention composed entirely of advertising experts. The mediums most available, the amount of money to be appropriated for the purpose, when and how to prepare copy for advertisements, the space and type to be used—all must be decided for each company according to the conditions with which it is confronted, and then left to the skill and judgment of the man who is given charge of the work.

As there can be no set rules or formulas in publicity, any specified number of men may be depended upon to hold an equal number of opinions regarding the details. The leading experts in the advertising world disagree radically upon the minor points of their profession. It is useless to follow fixed forms in publicity, as it would be in personal correspondence, and good publicity work cannot be done beyond sight, hearing and touch of the local consciousness to be reached.

In important matters of finance, engineering and construction, we trust the work to the man in charge and hold him responsible. It should be so with publicity. The company's task, as in the selection of a superintendent, attorney or head of department, is to put the right man in charge. While we cannot make much progress in considering details of publicity, we can, however, give attention to certain general conditions, with a view to consistent effort to combat, correct and improve them. In this way, the continuous publicity work of local companies in their respective fields of service will be uniform, logical and cumulative in its effect, the final successful result being a changed universal opinion of the natural gas business as a whole. From this changed opinion the industry will have gained permanently a reasonable degree of public confidence, which is all we ask in our contests with Nature and our controversies with those we serve.

Every natural gas company is aware of the extraordinary heat energy of its product, as compared with other fuels, its hygienic value, its non-poisonous characteristics and other virtues of practical application. Under this heading alone may be found subjects for scores of interesting, instructive and effective advertisements, each of them capable of adding to the sum of public knowledge and strengthening public confidence in the merit of the gas itself.

To some of you the serious constant reiteration of such self-evident facts may appear unnecessary and useless, but the masses of the public are no more familiar with these things than is the uneducated child familiar with the fact that two and two are four until it has been permanently hammered into him. It is the very simplicity of the things we desire the public to know that makes the greatness of our opportunity.

Of late, the light has been breaking in on the industry in the matter of prices at which natural gas is sold. Possibly, we are not, as yet, all of one mind on this subject, but facts cannot remain hidden forever, and some day, if not right now, we must admit that the selling price of natural gas always has been far below its true economic value in comparison with other fuels, that the companies have sacrificed millions of dollars in this way, for which the public has not always given even good will in return, and that in consequence of these low prices wasteful use and earlier exhaustion of supply are inevitable. Many formerly productive natural gas fields, now only memories of glorious fuel saturnalias of the past, might still be engaged in the public service but for the uneconomic low prices at which the gas was sold.

If the industry itself is just coming to the point in its development where these facts are recognized and admitted, it is not strange that the consuming public exhibits no zeal in helping us establish higher and more equitable rates.

Cut-throat competition and piratical enterprise in the early days of natural gas production laid upon the industry a handicap of absurdly low prices from which it has not yet emerged. Flamboyant promoters, preaching of inexhaustible supply and uncountable profits, convinced the public that any price that might be charged for natural gas was too high. They have rested from their labors, but tormenting evidences of their activity remain. The publicity man will have to do most of the heavy shoveling in clearing away the rubbish still left in the public mind.

The true value of natural gas fuel, compared with the price; economic methods of use, compared with wasteful methods; the duty of the industry and the public to conserve, as far as possible, the known supply—all offer many fruitful topics for treatment in the public prints. The right price for gas is always a live subject and will get the attention of the public whenever it is mentioned. The natural gas industry sells a fuel richer in heating value at a price much lower than is usually charged for artificial gas, but the natural gas is not freed from complaint by reason thereof, and will not be, until full publicity on the point of price has been given.

This industry, in the same manner as other public utilities, is harassed and impeded because of the mistaken popular idea that small consumers are overcharged in favor of large consumers. Politicians make much of this idea and it enters, in some form, into all questions of rate regulation. It is responsible for much ill feeling among consumers of gas and makes development work and satisfactory service more difficult. It is a part of the error which must be removed by publicity before our business relations with our customers can be on a fair co-opeative basis.

There are many things to be said in an interesting way on this subject through carefully prepared advertising. The records of all natural gas companies are

now kept in such detail that analysis of consumers' accounts is easily made. It will be found, without exception, that large numbers of small consumers receive service at less than cost and that larger consumers must make up this deficit and the return on the investment. It is necessary that this fact be firmly impressed upon the public before equitable schedules of rates can become popular.

The statement that the small consumer is a losing proposition for a public utility company is generally received with incredulity in any community, which is evidence of the widespread ignorance on this point and the need of persistent publicity. There is no reason to fear the publication of facts relating to this subject, when diplomatically presented. Popular knowledge as to the relative commercial status of small and large consumers will bring about much better relations between the public and the company, and is a sound basis on which to strive for more equitable or higher rates. Public opinion is pretty decent when it feels the big fellow is getting the worst of it.

In times of shortage due to extremely cold weather or excessive demand from any cause, complaint of natural gas service is universal. Nothing so intensifies the feeling of antagonism toward a public service corporation as physical discomfort, and the relations between the company and its customers are seriously affected on such occasions. As we are well aware, combinations of circumstances sufficient to cause interrupted or impaired service will arise at intervals as long as natural gas exists. The best method of anticipating and meeting such situations is, therefore, clear. It is better to advise the public, through proper publicity, of the numerous forces that constantly put their service in peril than to induce or allow them to believe the supply of gas is more than sufficient for every emergency and inexhaustible.

The little added business that may be gained by over-assurance is no recompense for an angry community with frosted toes, believing they have been deceived or that the company is incompetent. The benefits of natural gas service are so great during the major portion of the year that they completely overshadow the discomfort of a few days of interrupted service or the small expense of providing auxiliary equipment and fuel.

A natural gas company should not hesitate to make this plain to all who use its service, and when it has done so it will find a great difference in the temper of its patrons. The simple fact that the supply of gas at the wells and the capacity of any pipe line are subject to the laws of Nature, while the possible demand for service is unlimited by any law, should be impressed upon every user of natural gas.

When this is done, the complaint following interrupted service will not only be less serious, but personal discomfort and business disorganization will be greatly diminished. Publicity is the answer here, as everywhere in matters which affect the business relations between the company and the people.

"Excessive profits" is a delicious phrase for the demagogue who mouths of millions in his attacks upon public service corporations, and the bigness of the sums involved helps to carry conviction to the public mind. Anything to which the word million may be applied has few elements of popularity in this country of free speech and democratic ideals. Reduced to smaller units, of equal truth and importance, the large figures of investment and income become more intelligible and less offensive.

It is often advisable and necessary to speak publicly of the financial affairs of a natural gas company. In such publicity, it is well to present a few facts as to the size and extent of the property in use whenever the amount of the investment in dollars is mentioned. Gross income and earnings appear much less excessive to the public when the number of consumers is known and the small sum which each individual contributes is calculated.

Unjust taxation becomes unpopular and indefensible when treated as a certain excess tax levied upon gas consumers for the support of the general public. Free service work, to which many companies devote attention for the purpose of improving business relations, does not produce the full results of which it is capable unless it is supported by proper publicity.

It is impossible to enumerate here the many ways in which plain facts concerning the natural gas business can be presented to the public with beneficial effect, but experience tends to show that all truthful, candid, seriously undertaken publicity is good, that it improves the relations existing between company and consumer, whether such relations may previously have been satisfactory or otherwise. In doing so, it assists commercial development, makes larger sales possible and aids the company in procuring reasonable prices for its product.

The term "Publicity," as applied to the natural gas business, is generally understood to mean the various forms of printed matter, newspapers, periodicals, booklets, circulars, etc., which it has been customary to make use of in advertising. In that aspect, the subject has been treated here, but there are other forms of effective publicity which should not be overlooked. Good service, polite demeanor on the part of officers and employes, and making apparent by word and action the company's desire to treat the public fairly and give the most value possible for the money, will be found to help materially in establishing and maintaining the cordial relations we seek. Energetic and sincere participation in the general activities of community life is of great assistance to the managers of a distributing company. It identifies him publicly as a live one, interested in the affairs of the people, as well as his own, and goes far toward fixing the status of the company as a real and valuable citizen, ready to pull its share in the tug of war for common advancement.

Managers, heads of departments and employes of all grades may discreetly take active part in the business and social life of their cities. Membership in commercial associations, clubs and societies offers

many opportunities to the public utility man for broadening and extending his usefulness and influence, provided it is not pushed to such excess as to arouse the enmity and ill will of other leading citizens ambitious in fraternal and social circles. The personal ambition of a good gas manager is circumscribed by the gas business. As a career, it has no superior in variety and intellectual exercise.

We have spoken of the necessity of local plans and policies in publicity because of the differences in conditions with which distributing companies are surrounded. Such handling of publicity undertakings is most effective, but it is possible to compile much general information relating to the industry at large and place it at the disposal of all companies for use in publicity campaigns.

Statistics covering the extent and difficulties of natural gas production, transportation and distribution throughout the country will be read with interest by the consuming public and furnish safe topics for publicity under all circumstances.

An expert detailed survey of the industry that would show its possibilities of service from the known fields of production, the possibilities of transportation under peak load demand, and the possibilities of commercial development under proper and reasonable schedules of prices would be very helpful in guiding general publicity along lines of logical argument and practical accomplishment. Information of this nature could be so intelligently and persistently used that it would eventually give the entire gas-consuming public a truer idea of the real worth of natural gas to mankind. It would also develop a keener sense of fairness to and confidence in the men who have discovered, harnessed, driven and delivered it to the homes and factories of the people. Incidentally, many of us would probably be instructed and made more efficient as a result of our labors.

The aim of publicity being to give correct information to the public, the foundation for it must be possession within the industry of correct information touching every point that has a bearing upon the character of the business relations it is desired to sustain. We have entered upon a period in public utility service that concedes the profitableness and necessity of co-operation between producer and consumer. Both must derive benefit from every legitimate transaction. Co-operation is impossible without mutual understanding, and mutual understanding can only come by transference of knowledge within the industry to those on the outside. The agency is, of course, publicity.

It is the duty of managers of gas companies to inform themselves upon every phase of popular misconception of the business. Their accountants, their engineers, their new-business chiefs can give them the facts, and their publicity department will know, or should know, how and when to make use of them.

Publicity work cannot be done effectively in a half-hearted or insincere manner. The determination to make things right must exist before it can be demonstrated. A true story must be told many times before everyone will know it.

Reputation is built upon publicity and varies as the publicity is good or bad. Publicity obtained without effort or expense is generally bad. If the natural gas business is to occupy its proper place in public regard it must prepare and pay for its own publicity. Disgruntled consumers and shyster politicians constitute a poor advertising force for a gas company. Truthful publicity intercepts the existence of the one and neutralizes the other.

Our business relations with each other are founded upon such knowledge as we possess. When the average man is convinced that he is getting a square deal he is a pleasant fellow to trade with. Then the service he purchases is more valuable because more satisfactory to him, and his patronage is worth more to the one who receives it.

## DISCUSSION.

Mr. Milt Saul: Mr. President and Gentlemen, I do not know that there is anything that can be added to the splendid paper prepared and just read by Mr. Lansley. The only suggestion probably, or the best suggestion I could make is that we all take that paper and study it very seriously and very carefully. We all ought to give it our most careful and deliberate consideration.

Throughout the gas industry—the manufacturing gas industry as well as the natural gas industry—there are a number of former newspaper men. I am one of them. We have noticed a number of times in the past few years the admirable papers that Mr. Lansley has prepared. It has been unanimous among the former newspaper men now engaged in this industry, that he always gives accurate advice on matters of publicity. It is a source of a great deal of satisfaction to those men to get the publicity suggestions he makes.

Now, I mention the former newspaper men solely for the reason that they are experienced—probably more experienced in publicity matters than the rest of us.

There are two points in Mr. Lansley's paper that I would like very much to emphasize. He brought them out very admirably. One of them is the importance of reiteration in matters of publicity, and truthful publicity for the public. It cannot be stated too often, nor too continuously, this matter of publicity that you wish the public to get and to appreciate. As an illustration, take the case of a political party, or a candidate for office. He wishes the public to be informed. You will find that for months in advance of the election the greatest amount of publicity and advertising will be expended in order to inform the public. The publicity managers of a political movement, they do not advertise once and then stop. They do not take a shot with one form of publicity only, but they keep it up continuously for weeks and even then the public is not thoroughly informed at the close of the campaign.

Now, in matters of a more technical nature, such as the natural gas business and matters pertaining to the use of gas in all of its various forms, it cannot be expected that the public will understand what its advantages are or what its economies are unless it is told repeatedly. So I would suggest in connection with Mr. Lansley's paper that each company here and the representatives of each company here decide to put advertising and publicity on its pay roll as a definite item of regular expense and employ it as a definite working force as you would your auditors or your bookkeepers or your salesmen.

Publicity is not a matter of secondary importance. It is of primary importance. You must inform the public and keep them informed as to your policy; as to the advantages of the article you have for sale; as to the service you offer the public in the use of the commodity you are furnishing. It is not a thing to be treated lightly as Mr. Lansley so admirably puts it.

Now, there is just one other point I would like to call attention to. He has stated that the managers of companies can help in publicity matters by activities in various lines in the community. It was my good fortune once to be connected with a public utility company that tried out that policy. It insisted that its men join in the various civic movements; the Chamber of Commerce; the different improvement associations; the social clubs. Every movement of public interest had one of our men in it to represent the company; and whatever campaign of publicity the company was waging at that time, was backed up by the personal publicity on the part of these representatives in these prominent places, and connected with these popular movements. If the company had any matter up before a Commission and was carrying advertising matter—publicity matter in the newspaptrs—our own men were at points where the men of the community gathered, and when they discussed these things they were there to enlarge on them and to help educate the public in this way. They led the community to believe that what the company was saying in the newspapers was true; was correct. They were there to explain, and it was not very long until this company that I have in mind was the most popular institution in town. That was because of their campaign of publicity and the way they went about it. Its best men were representing it where other men gathered to discuss such matters and all of its matters were talked of publicly in these places and the public got a good opinion of the company and to this day that good opinion is maintained. Now, I would suggest to take Mr. Lansley's paper, on account of its very fine, technical value, and study it and make up your minds to put the important item of advertising and publicity on your payroll and back it up by personal publicity throughout the community. I thank you. (Applause.)

President Guffey: We would now like to hear from Mr. Hoover of Cincinnati, Ohio. What have you to say on this subject?

Mr. H. J. Hoover: Mr. President and Gentlemen, some of us, whose particular work in the gas industry has been to deal with the public, have long recognized the importance of constant and efficient publicity. At nearly every meeting we have had some paper and some discussion of this matter. Some of us have been pioneers in an effort to instill into the minds of the officials of these companies the necessity for honest publicity. I do not believe that anything can be added to or taken away from Mr. Lansley's most excellent paper. I think it can be truthfully said that it is the most thoroughly prepared and the most carefully developed treatment of the subject of publicity that has ever been presented to a natural gas convention. I heartily endorse what Mr. Saul has said, that we take it home and study it and see that every official connected with the company digest it thoroughly. It contains in every paragraph food for thought. It treats of a subject that should be acted upon and if acted upon, it will bring results and good results. I think that Mr. Saul has stated a very important matter, in a very concise way, when he said that publicity should be put upon every company's pay roll. The expense of publicity should be part of every gas company's expenditures, just the same as the salary or compensation of any employe should be a part and parcel of that expense. We may not be able to point to direct results, but we do know that it does bring results. Last winter we all experienced shortages of gas in our several communities. I believe that anyone who came in contact with the public and explained the conditions under which we were operating and the gigantic propositions we have to meet and the impossibility of rendering adequate service under existing conditions, after these explanations, could not help but be impressed by the advantages of honest publicity. After explaining our difficulties we were almost universally met by the statement from our patrons and customers, "Why do you not tell that to the public?" "We understand it now, but why don't you tell it to the public?" We should take the public into our confidence and when these matters are explained to the public, we are sure it will have the effect of minimizing criticism. (Applause.)

President Guffey: If Mr. Frederick W. Stone, Manager Ashtabula Gas Company, is present, we would like to hear from him.

Mr. Frederick W. Stone: About all I can say, Mr. President and gentlemen, is that I heartily coincide with the views as expressed in the paper just read and with the remarks that have been made by the gentleman who has just preceded me. When I heard Mr. Lansley read his most excellent paper, I was reminded of a remark I heard made at Cleveland three or four weeks ago with regard to a speech to which we had just listened. In going away from the place of meeting I heard one man make this concise and pointed remark: "Well, that fellow certainly knows his business; he knows what he is talking about." As I say, when I heard Mr. Lansley read his paper, I felt the same way about it. It goes without saying that he knows his business and he knows what he is talking about. I suppose any one managing a gas company has been up against the proposition that when he has

had trouble he feels that the newspapers jump on to him. If there is a breakage in the line; if there is any shortage of gas or anything of that kind, the newspapers are usually anxious to tell the people about it, or at least to the gas manager it seems that they are apparently anxious to tell their readers all about it and the gas manager usually feels that the newspaper man gives the story undue prominence by its location in the paper. On the other hand, if your service has been good throughout the whole year, the newspapers do not say anything about it and when you go to the editor and ask him to put in something praiseworthy about the gas company, he receives you with an indifference so that when you go away from him you are inclined to feel a little sore at him because he does not do as you want him to do. I think that is caused by the different viewpoint by which we consider the matter and it all turns on what, in the eyes of the newspaper man, is news and what is not news and upon what, in the mind of the gas manager, would be news from his standpoint. To the newspaper man, whatever is interesting, startling and strange, that will be read eagerly by the people, is regarded as news from the newspaper standpoint and that is the reason they print things that are possibly adverse to the gas company or give mention to some unusual occurrence in connection with the gas company's business. We must all remember that if we do things well, that is simply something that is expected of us and it is not news at all. Consequently the newspaper man will not print it or at least he will not print it free of charge. If the newspaper man will not print good news on behalf of the gas company free of charge, it seems to me it is up to the gas company to pay for it over their own name. If you are man enough to say anything, then be man enough to sign your name to it and to say that it is so and to stand back of it. That is the kind of work we have to do in connection with publicity work as far as gas companies are concerned. I know that some gas companies give too much importance to the cost of such publicity work. I am not one who would undertake to set any limit to which a gas company should go or ought not go in the matter of paid publicity nor would I attempt to say that they should expend any stated amount in their publicity work. But it would be sort of an inspiration to some of us probably if we were to take into consideration and give due weight to this item of expenditure in the electric light business. The electrical interests last year averaged, by way of expenditure in paid publicity, something like three per cent of gross receipts. That shows the faith they have in paid publicity. Of course, we could not afford to do anything of that kind. At least, we could not work ourselves up in our present state of lethargy to the belief that we could afford to do it. However, it will give us something to think about for it is a field of endeavor which we are going to have to take advantage of more and more in order to let the people know the advantages of the product we are offering for sale. We must not necessarily think of the cost and the cost only, we must take into account on the other side of the ledger the results to be obtained. Of course, you cannot always measure the results of publicity. As stated before, you have to hammer and hammer and hammer before you can begin to notice results. I wonder if anyone here has ever changed the location of his office and has realized how long a time has to intervene before the public generally becomes aware of the change? For example, if they have changed the office of the company from Jones Street over to Brown Street, they will find that some people will continue to go to Jones Street for three or four years in order to pay their gas bills and that in spite of the fact that the change has been freely advertised. The people read an item of that kind and then forget it. If you do not tell it in a half a dozen different ways and as many different times, they will not remember it. This illustrates the necessity of keeping continually at it. Constant repetition of this campaign of publicity is necessary in order to obtain the best results for it keeps you before the public all the time and keeps you before them in the way that you want to be kept.

Now, there is another matter that I want to mention, although I do not know that I should take so much of your time. However, it is upon my mind. We sometimes think that newspaper advertising is not read. There was a time when I thought so and so two or three years ago—about two years ago now—I undertook to test the efficiency of newspaper advertising. I went down our customers' ledger and I picked out every tenth name until I had 500 names. Now those 500 names picked in that way would represent an average of the people in the community because they were, as I say, one out of every ten of our regular customers. I sent them a letter with a return envelope in it and a little form sheet for them to fill out. I asked them if they read the advertisements which were being put out by the gas company and if so, whether they thought they were any good, and also if they could offer any suggestions as to the future advertising by the company. Out of the 500 letters I got 231 replies. That was nearly 50 per cent. Someone familiar with the work told me afterwards that that meant that at least two-thirds of the advertisemens were read because here were lots of people that would get such a letter who would not answer it; who would lay it off to one side and think they would answer it after a while, but they would not answer it at that particular time and probably it afterwards escaped their memory and it would not be answered at all. Therefore, I am convinced that newspaper advertisements are read more generally than we often times think they are read. I believe that is all I have to say, Mr. President, except to emphasize the fact that if we simply put an advertisement or a statement in the paper we will say once a year, or even once a month, it does not amount to anything because to get the full benefit from honest publicity, you have to keep at it constantly. It must be a regular campaign followed up methodically. I thank you. (Applause.)

President Guffey: We would like to hear from Mr. Brown, New Business Manager, The Ohio Fuel Supply Company.

a number of small towns in which we do business and probably the greatest argument in favor of the Magazine method is the economy with which full, frank publicity can be employed so that the published matter gets into the hands of the consumer over this extended territory. In our case, we could not have gotten anything like the extent of publicity from ordinary newspaper advertising for the same cost we have had in publishing and distributing "The Gas Magazine." However, I endorse everything that Mr. Lansley has said as to the merits of newspaper advertising. I can certify to that from my own experience.

Mr. George Yardley: How is this magazine distributed?

Mr. W. Re. Brown: These magazines are mailed with the gas bill. We have two different methods of distribution. For a number of years they were distributed by the meter readers in the various towns in which we were furnishing gas. In this way our magazine was distributed from house to house to each patron in each town. Now, we are pursuing the method of mailng the magazine with the gas bill.

If there is any other inquiry from any member present, I will be glad to furnish whatever information I can. I thank you (applause).

President Guffey: We have with us this morning one of our most distinguished legal representatives and I am going to take the liberty of calling upon him to discuss this matter from his viewpoint. I am sure we would all be glad to hear from Judge Douglas, General Counsel, Logan Natural Gas & Fuel Company, Mansfield, Ohio, (applause).

Hon. S. M. Douglas: Mr. President and Members of The Natural Gas Association of America: It would certainly be presumptuous for me or anyone else who has not given this matter special attention, in view of the long experience and the splendid results that the author of this paper has given to us in the address just made by him, to attempt to add one thing to it, because it covers the entire situation in a most complete and comprehensive way. As he said—and, indeed, the key note of his paper was, although I did not have the pleasure of reading it before,—the kind of publicity should always be truthful publicity and then to keep hammering at it persistently and insistently so that the public is taught to appreciate the importance of the subject and the full and frank manner in which you present your side of the question. Those are thigns that we ought to remember. Truthful publicity and keeping at it and keeping at it. As was illustrated by Mr. Stone, people are more or less creatures of habit, and if a thing is not upon their minds unless you keep telling them and telling them, they will forget it; they will not appreciate the importance of it at first; they will keep thinking along old lines just like the patrons that he spoke of who continued to go to the office of the company on Jones Street, when, as a matter of fact, they knew, or ought to have known, that for a number of years the office had been removed to Brown Street, and the public had been duly advised of the change of location at the time it was made.

Now publicity is important,—why? The right kind of publicity is important,—why? Because it ramifies every department of the natural gas business. Take, for example, Mr. Denning and myself and all the attorneys who have to do with the natural gas business. We have to contend constantly against the prejudice that results from ignorance, from lack of information, from absence of honest publicity. That poisonous virus creeps in and affects every jury and even unconsciously affects the court. It affects the witnesses, not only of the opposition but oftentimes our own witnesses. If the information is the wrong kind and if it has not been corrected by honest publicity, it presents obstacles that are difficult to surmount. Therefore, it is highly essential even in our department of the natural gas business to see to it that correct information is given to the public. We must cultivate the brains of the people into a correct view of the true situation. When we have that kind of truthful publicity that is not simply some gauzey sham or pretense but is honest, is frank, and is complete and when we have continued that campaign of honest publicity until the public is fully informed, then our work will be much easier. That is the only kind of publicity that pays. When you educate the brains of a community by correct public sentiment it gets rid of ignorance, it destroys prejudice, it brings enlightenment where formerly there was darkness. Truthful publicity means a square deal; honest publicity insures justice. You can rely on the public, if they are fully and completely informed, in doing the right thing. It is not only important—this matter of publicity from the standpoint of the operating department, but it is equally important, if not more important to the legal department which deals more directly with the public in matters that are controlled by public sentiment. If, on the other hand, you have a credulous public controlled by ignorance, there is not a single department, there is not a single feature connected with the natural gas business that is not up against a good big, stiff proposition when we come before the public and ask for a square deal. We all know what adverse public sentiment is. However, I am glad to say that conditions have changed and mightily changed in the last few years. The people have gotten to understand that what we want and what we must have in order to continue in this business is only a square deal and it is just such papers as this, prepared and presented by Mr. Lansley, that assist us immeasurably in bringing public opinion around more equally to our point of view. Every line of it is replete with valuable suggestions. It is the best prepared article I have ever heard on this all-important topic. It is temperate. It is not radical. It is convincing, and above all it tells the truth.

In conclusion, the thing for us to do is to keep on hammering along this line of truthful publicity. I thank you (applause).

President Guffey: We will be glad to hear from any other member on this subject. The paper is before you for discussion. A full and frank discussion of the sub-

## NEW YORK'S INTERESTS PURCHASE BUFFALO'S ARTIFICIAL GAS COMPANY

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## DOHERTY CADETS REPRESENT MANY ENGINEERING INSTITUTIONS

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# *Industries and the War*

***Address Before War Convention of American Business.***

By A. C. BEDFORD,
President Standard Oil Co. (N. J.).

UNDER the general heading, "How American Industry Can Help Win This War," the topic assigned to me is "Priority and Distribution." The matter of distribution, of course, involves supply and conservation. I can speak on any such topics only in so far as they include affairs within my own experience. Perhaps, a statement of the concrete experience and problems of the industry with which I am identified may have lessons which will prove illuminating to other industries. Therefore, without attempting to deal in generalities with reference to the relationship of American industry to our Government in its efforts to win the war, I shall attempt to tell you something of what the petroleum industry is doing in that direction, and what more must be done if the efforts of the petroleum industry are to be completely successful.

The fundamental problem confronting the petroleum industry is that of supply. Next to an ample quantity of munitions of war and food, nothing, with the possible exception of coal, is so absolutely vital to winning this war as petroleum and petroleum products.

They tell us the war is to be won in the air. Our country is said to be building large numbers of aeroplanes. Our Allies are building flying machines as fast as they know how. Vital to the very existence of these aeroplanes is the highest grade of gasoline which can be produced.

We are to send great armies to Europe to supplement those of our Allies. They say that four tons of material must be shipped for every soldier transported. In France most of the transportation must be done by motor lorries. When our army is fully equipped, some 35,000 motor lorries will be required. These will require gasoline and lubricating oil in large quantities.

Our Government is building at the greatest possible speed merchant ships and men-of-war. We have appropriated hundreds of millions of dollars for the gigantic task before us. These ships will call for fuel oil, lubricating oil and gasoline to an extent beyond any precedent.

To protect our coast against submarines, our navy has created a Mosquito Fleet, consisting in a large measure of motor-boats. There are thousands of motor-boats operated in American waters, although, of course, not all are for purposes of national defense. The operation of every such vessel, whether for pleasure or for strategic purposes, calls for a continuous supply of gasoline and other petroleum products.

Our Allies, too, are calling for oil in all its forms in ever-increasing quantities. In 1915 this country exported about 5,000,000 barrels of gasoline, whereas in 1916, 7,120,000 barrels were sent abroad.

Munition cars, ambulances and self-moving vehicles of every kind are increasing daily in the theatre of war, and the prospect is that the present year will call for 8,000,000 barrels of gasoline for the use of our Allies in Europe.

Our Allies also look to us for the bulk of their supply of fuel oil, and petroleum products of every form for the use of their merchant ships, their navies and their armies. With the Galician and Roumanian oil fields in Europe in the hands of the Central Powers, and with the available supply of Mexican oil reduced by reason of the shortage of shipping tonnage, the United States is the largest and nearest source of supply for the oil in all its forms, which is so absolutely necessary to win this war.

And let me say right here, that this war must be won. No American who appreciates his birthright can falter or be faint-hearted for a moment. The very existence of free institutions depends upon the success of the Allies in this struggle. No matter what our bias may be in domestic politics, no matter what may be our views on this or that policy in our own national affairs, we can have put one view as to our obligation to support our own Government—to support the Administration in control of our Government, in every way in our power to help win this war. That is the spirit in which the oil industry is working it is the spirit in whch every other industry of this country is working. The vitally important thing is that that spirit should be intelligently directed and should bend its efforts along lines which will be completely effective in the national interest.

I have given some indication of the needs of our own Government and our Allies for petroleum and petroleum products necessary in the actual conduct of warfare. Many of these uses are entirely or relatively new; others are upon a scale hitherto undreamed of. Certain it is that all of them call for an ever-increasing supply of petroleum.

And the demand for petroleum and petroleum products is not alone in the actual conduct of the war. Up to relatively a few years ago, the chief use of petroleum was for kerosene and lubricating oil. With the development of the internal combustion engine and

its adaptation to the automobile, we found an entirely new use for gasoline, which, up to that time, had been considered an unimportant by-product of crude petroleum. Now it has come about that the chief value of petroleum consists in its gasoline content, and while England and our Allies are calling in loud tones for more ships, and more ships, the world of warfare, of trade, and of pleasure, are calling in ever-higher tones for more gasoline and more gasoline.

The increase in the number of automobiles manufactured in the United States has been little less than miraculous. In 1899 there were 10,000 motors in this country. In 1905, only 85,000 cars. Yet in 1914 there had come to be 1,253,854 cars, and by the 1st of July this year, approximately 4,000,000. The production of gasoline, brought about by this extraordinary demand, jumped from about 6,000,000 barrels in 1899 to some 45,000,000 barrels in 1916, and will probably be over 50,000,000 barrels in 1917.

In addition to all the demands for gasoline, there has been a great call for petroleum for fuel oil, for road-making, for use in farm tractors, and for use in small farm engines. Every part of the oil is being put to some useful purpose, and the value of the by-product is increasing day by day.

In response to the demands thus created, there has been tremendous development in the production of crude oil in this country. The consumption of crude in 1904 was 117,000,0000 barrels it rose steadily to 324,000,000 barrels in 1916. For several years prior to 1916, the prodution of petroleum in this country had been in excess of consumption. In 1916, whereas over 308,000,000 barrels of crude oil were produced in the United States, the consumption amounted to over 324,000,000 barrels of crude oil of American production. In addition to this 324,000,000 barrels, we absorbed in this country 23,000,000 barrels of Mexican crude.

The figures for the first six months of the present year are highly illuminating, and present a picture which it is the duty of every one of us to consider carefully. The figures available for the first six months of this year show that the rate of production of crude oil indicates a total production for the year of 312,000,000 barrels, whereas consumption was going on at a rate of approximately 330,000,000 barrels for the year.

On the 1st of January, the amount of petroleum in storage in the United States was 174,370,500 barrels, whereas on July 1st, 164,590,942 barrels were in storage—a reduction of 9,779,558 barrels. This reduction is, however, largely in California stocks, in which state the situation is serious.

It will thus appear that with the stocks above ground and given the present rate of production and consumption, the supply is sufficient to insure our having enough oil for at least the next five years—provided the production is fairly maintained. So while the occasion is not one for alarm, it is one for taking intelligent measures toward adequate production of what we need. Such is the situation confronting the Petroleum Committee appointed by the Council of National Defense, to co-operate with the Government in meeting its oil requirements.

This Committee, which is composed of men active in the production and refining of petroleum, has addressed itself wholeheartedly and unselfishly toward the work committed to it. The duties laid upon this Committee may be briefly summarized as follows:

1. To secure the necessary and adequate fuel oil and gasoline supplies for the fleets of the United States Navy, both at home and abroad, including the Coast Patrol Services; also the necessary gasoline supply for the Transport and Motor Car and Aeroplane Services for our armies, operating abroad and at home, and for those now in the process of formation.

2. To secure the necessary fuel oil and gasoline supplies for the Allied Fleet of the British, French and Italian Navies, and the gasoline supplies for the Aeroplane and Transport Service of the Allied British, French and Italian Armies, working directly with the War and Navy Departments of the Allies through the British, French and Italian Missions.

3. To secure and arrange for the supplies of petroleum products (fuel, oil, gasoline and kerosene) necessary to the industries engaged in the production of munitions, both at home and abroad, and to co-operate with the various foreign agencies and government departments in connection therewith.

4. To co-ordinate the manufacture and distribution of petroleum products through the co-operation of the refiners of Petroleum in the United States and, because of the present serious excess of consumption of oil over production, to endeavor to stimulate producers of crude oil to increase production, to the end that all needs shall be fully met.

The duties of the Committee thus briefly outlined are of vital importance to the successful prosecution of the war.

It would not be appropriate on this occasion for me to go into details with reference to the methods pursued by this Committee or exactly what it has done. Our duty has been, in a word, to find out what was wanted, and to furnish the supplies at the time and place they were needed. We have recognized that the Government requirements should have absolute precedence, and that no consideration of cost, convenience or selfish interest should interfere with our giving to the Government everything it asked of us. That has been our policy from the beginning—a policy carried out in good faith, and, I believe, to the satisfaction of the Government. The methods of carrying out that policy are largely matters of detail, and would not be of special interest, even if they were not so very confidential. Suffice it to say, that the plan has been to distribute the burden of taking care of these needs of the Government equitably among all producers. The question of price has not yet been determined by the Government. We are all interested in the price, of course, but we have confidence in the fairness and broadmindedness with which this question will be met

by the Government, and our acts have been in accordance with our faith.

The supreme problem which has confronted our Committee in its efforts to serve the Government has been the problem of supply. The oil industry is distinguished from the coal and many other industries in that the problem of supply does not depend upon the present facilities for manufacturing or transporting. Figures compiled a year ago showed that there were 302 refineries in this country, with a daily capacity of 1,043,245 barrels of crude. The refining capacity of the country was increased by 50 per cent. in 1915 and 1916, and at least fifty new refineries were projected at the time the figures above named were compiled. The oil refining capacity of the country is indeed greater than the present demand.

The situation in a word is this: The country is producing oil at the present time at a rate of about 312,000,000 barrels annually; it is consuming it at the rate of over 330,000,000 barrels; and the refining capacity is upwards of 350,000,000 barrels. The pipe line and other transportation facilities now existing and in process of construction are reasonably ample to take care of the situation.

The refiners not only have increased their capacity to take care, by existing processes, of crude production to supply existing demand, but they have employed the most expert talent in efforts to extract from crude petroleum gasoline and other products which are most in demand. Had it not been for the introduction of the "cracking process," invented by Dr. Wm. M. Burton of the Standard Oil Company of Indiana, and other similar processes, the supply of gasoline would long ago have fallen far short of the actual requirements.

Great progress has also been made under pressure of necessity and enterprise, in producing gasoline from the casing-head gas and natural gas. This year approximately 2,500,000 barrels of gasoline will probably be obtained from this source, with more, probably, next year.

But when all has been accounted for, the fact remains that this country will next year require at least 55,000,000 barrels of gasoline, and that amount simply cannot be obtained from the quantity of crude petroleum now being produced.

The fundamental and vital problem confronting the petroleum industry today, is to increase the production of crude oil.

The conditions surrounding the production of crude are wholly different from those involved in the making of the refined product. By reason of the great amount of capital required to refine, transport, and market oil, the number of those engaged in this part of the business is relatively small—not more than a few hundred. The number of those engaged in producing crude oil, however, is more than fifteen thousand. Many of the operations are very small, but each in its way contributes to the vastly important total.

The production of crude petroleum involves many unique features—different from all other mining operations. When one discovers a copper, iron, lead, silver, or coal mine, he can, with expert assistance, tell pretty definitely the minimum quantity of mineral available. The question of supply then becomes merely one of obtaining sufficient labor to work the mines.

The production of petroleum is wholly different. The process of drilling wells, often many hundreds of feet into the earth, requires many weeks, frequently months. The prospector never knows whether or not his enterprise will result in failure. Likewise, even after he strikes oil, he can never tell how long the supply will last. The great Cushing pool, discovered in 1914, produced hundreds of thousands of barrels of crude oil in a month, and the supply seemed inexhaustible. It played havoc with the whole oil price structure, and worked a veritable revolution for the time being in the industry. Then within a period of about 90 days the production fell off two-thirds, *i.e.*, from 320,000 barrels daily to 112,000 barrels and today it is about 70,000 barrels per day. Yet the discovery of this Cushing pool resulted from the extraordinary high prices paid, causing a large number of prospectors to drill wells. We know that there is plenty of oil in the earth, and it only takes a sufficient amount of effort and money to find it.

For the first six months of this year, the producer of crude petroleum obtained discouraging results. Gushers have been less and less frequent, and dry wells more and more numerous. The price of crude oil has, meanwhile, rapidly gone up. Oklahoma crudes advanced from 40 cents a barrel in 1915—the hey-day of the Cushing pool—to $1.70 in January of this year, and remained at that figure for nearly seven months, advancing to $2.00 last month.

In spite of these greatly increased prices for crude oil, however, the number of new wells drilled has been decreasing, and notwithstanding the alluring prices for crude oil, the new production so far this year has been less than for the corresponding period of last year, and as I have already stated, the amount of all petroleum produced was considerably less than the amount consumed.

The reduction in the amount of new work undertaken by producers may be explained on several grounds; first, the price of steel necessary to build storage tanks or for casing and tubing and drilling materials has become almost prohibitive, or were not prohibitive, the materials have been in many cases unobtainable by reason of the demand upon steel and iron mills for other products necessary for the prosecution of the war.

Second, the price of labor in the oil fields has greatly increased.

It is but natural that as a consequence of these great costs and of the reduced margin of profit to the producer through the discouraging returns from the wells themselves, the effort, energy and enterprise devoted to the production and prospecting for crude oil has seriously declined.

Here, then, are the broad outlines of our problem:

What should be borne in mind is that petroleum products, and particularly gasoline, while vitally essential to the uses of war, also have other uses intimately related to the comfort and satisfaction of our daily lives. It can be said easily that we could get along without the automobile. The same could be said of the telephone. But

We must bear in mind the fundamental difference between the nature of the problem of increasing the production of crude oil and that of increasing the output of any other industry which is under the stress of supplying the requirements of this war. In the oil business the problem is not that of speeding up the production of existing wells whose output is determined by natural [illegible] efforts.

[illegible]

from their cars with a minimum consumption of gasoline; and above all else, every possible inducement, patriotic, educational, and financial, should be given to the crude oil producers of the country to bring forth from the earth—where plenty of oil is still concealed—all the crude petroleum which may be necessary not only for the conduct of the war, but enough to insure the progress and comfort of our daily lives.

## COMMERCIAL NATURAL GAS IN THE STATE OF WASHINGTON.

WE are indebted to Mr. H. C. Harris, President of the Spokane-Benton County Natural Gas Company of Spokane, Wash., for information covering discovery of natural gas in commercial quantity in the great Northwest.

Mr. Harris' account of the matter states that this is the first discovery of this nature that has ever been made in the Northwest. The well that is producing the gas is 706 feet deep, and is producing, so stated, over a million feet per day.

ENTERTAINING AT THE NEW GAS WELL.

A pond of water that remains the same depth the year around, is at the very top of the anticline. This pond is covered with an oily scum from which an analysis of petroleum has been secured. The gas analysis is as follows:

| | |
|---|---|
| Methane | 76.60 |
| Ethane | 12.00 |
| Propane | 7.20 |
| Butane | 3.80 |
| Oxygen | .40 |

There are three rigs at present at work in the field, and two more will soon be in operation. Mr. Harris' company is asking a franchise in the city of Spokane, at 70 cents per thousand cubic feet.

The field producing the gas is 120 miles from the city of Spokane with an excellent opportunity to retail gas on the line from the wells to Spokane.

The gas company has asked for about twenty franchises on or near the route of the main pipe line.

Spokane up to this time has been an artificial gas city.

Our illustration pictures various interested parties lunching at this first well, by artificial light supplied in flambeau fashion. The coffee served at this luncheon was cooked with the natural gas at the well.

We would not have it understood that the same wasteful methods are being followed at this well that pertained in the early days of natural gas in Pennsylvania when it was burned continuously for many hours, and in some instances altogether continuously from the end of an open pipe. In other words, Spokane does not intend to be put out of the natural gas game by having this most valuable product wasted.

An illustration of the derrick of the present well has been received, but as this is of the usual type of wooden derrick, we have preferred to illustrate the gas flambeau on the plains of the State of Washington.

## A BORDEN COMPANY PRODUCT UTILIZED IN NOVEL FASHION.

BEING confronted recently with the necessity of executing a rush contract to install a plumbing and heating plant several miles out in the country, a plumber in Aberdeen, S. D., hit upon a simple and effective method of operating a

THIS COMBINATION FILLS THE BILL.

"Beaver" die stock on the ground where the installations were to be made, as shown by our illustration.

To equip this ingenious power unit, it was necessary to secure a shaft having a universal joint at each end. One end of this shaft was fitted to the rear axle of a Ford Truck, and the other end to the driving pinion of a No. 41 "Beaver" Easy Working Die Stock, threading pipe from 2½ to 4 inches. This arrangement proved absolutely satisfactory, and saved the expense of moving a stationary power machine, weighing a ton or more, to the scene of operations.

# Comments on Oil Situation

***Henry L. Doherty Again Explains Why Use of Gasoline Should Not Be Curtailed and How Threatening Oil Famine Can Be Averted.***

H

loan them money if they feel that losses must be borne alone but that profits must be commandeered by our Government for war purposes.

The traditional order of things frequently leads us to continue to waste at the bung while we save at the spigot. For instance, every ton of coal we carbonize to make gas for town distribution produces in the gas about 2½ gallons of benzol and toluol. The bulk of all of this gas is used for fuel purposes. The benzol and toluol has no more value in the gas than an equal amount of cheap fuel oil or the commonest kind of a substitute gas. Commercial benzol and toluol sold for less than the price of gasoline prior to the European War. The Government now pays $1.50 a gallon for toluol for explosives.

Not one foot out of a thousand of the gas distributed for town use can be properly used and secure an advantage from the benzol and toluol content; and yet we continue to maintain the candle power standards adopted before gas was used for fuel purposes, or before the mantle lamp was invented, even though an abolition of the candle power standard for gas would give us all the benzol and toluol needed for explosives at a price lower than the price paid for gasoline—and would also give us an enormous quantity of benzol and toluol as a substitute for gasoline as motor car fuel. It not only can be used in all of our existing motor cars, but it actually has a higher fuel value than gasoline. It would also be thoroughly practical to operate bus lines and taxi-cabs with compressed town gas.

The present situation can be met, and with ease; or, for lack of forethought, an oil famine can be precipitated with still greater ease.

Yours very truly,

HENRY L. DOHERTY.

## NEW OIL AND GAS ASSOCIATION IN WEST.

A NEWCOMER in the field of gas associations has been welcomed into the fold. The new organization is known as the Mid-Continent Oil & Gas Association, and came into being at Tulsa, Okla., where the initial meeting was held October 18th. Frank Haskell was elected President; J. H. Evans, Vice-President, and O. H. Leonard, Secretary, although this latter office, we understand, is filled by Mr. Leonard only temporarily.

Mr. George E. Black, Chairman of the committee which had charge of preparing the document setting forth the aims of the association, had in hand the presenting of this matter before the convention. The first three paragraphs of the resolution read as follows:

"Whereas, The oil and gas industry, one of the greatest in the country, and a business upon which the motive and lighting power of the world is largely dependent, is without organization in the Mid-Continent field, in consequence of which the industry as a whole is deprived of the high degree of co-operation which is demanded by modern economic conditions; and

"Whereas, It is of the utmost importance that a thorough and permanent organization be formed, including in its membership all persons and corporations interested in the oil and gas industry in all its branches, including oil and gas producers, gasoline manufacturers, refiners, carriers, contractors, supply dealers and others interested in said business for the purpose of promoting their common concern in the industry."

Resolved, That we, the persons interested in said industry, pursuant to this meeting, do become charter members and do unite in due form in an organization to be known as the "Mid-Continent Oil and Gas Association," subject to the by-laws hereafter to be adopted, and subject to the general provision of this resolution.

An executive committee was elected consisting of the following:

P. G. Walker, Jr., oil; John Markham, Jr., oil; E. R. Perry, oil; C. E. Crawley, oil; J. A. Chapman, oil; Dana H. Kelsey, oil; D. C. Connolly, oil; Henry McGraw, oil; George E. Black, oil; B. F. Ryan, marketing; Frank Breene, oil; E. Constantin, refining; J. Edgar Pew, oil; Frank I. Lewis, supplies; Thomas K. Smith, gasoline; Archie Leonard, gas.

The above are all of Tulsa. Other committee members are A. J. Diescher, Bartlesville, Okla.; Deering Marshall, Wichita, Kan.; J. J. Moroney, Okmulgee, Okla.; C. F. Colcord, Oklahoma City, Okla.; P. C. Dings, Ardmore, Okla.

## RECOVERING METAL FROM FACTORY SWEEPINGS.

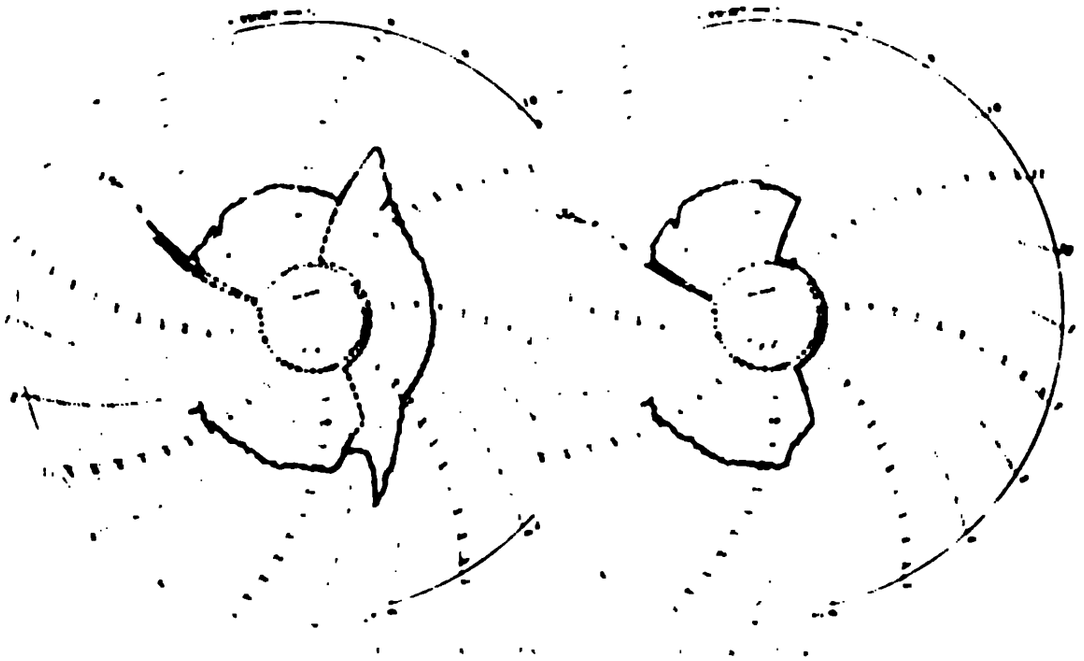
The days when things were left to go into the "dump" have passed. The war has insured an accelerando to that which had already started in this country, namely, systematic saving.

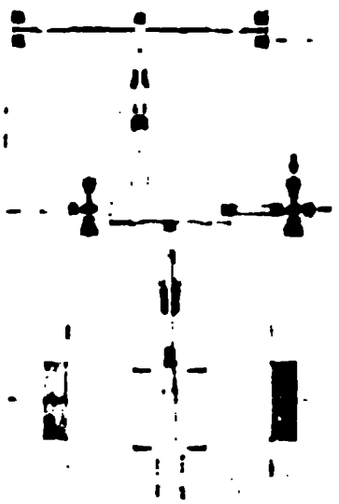
In factories where brass in sweepings or other valuable metal has been dumped into the waste, today these sweepings are being treated whereby to save the metal. Some of the methods, however, are crude, and unnecessarily so, in view of the fact that the gas incinerator has been found to work successfully in burning sweepings to recover metal.

The first of this line of work to be done with an incinerator, we understand to have been done with the "Incinerite," built by E. C. Stearns & Company, Syracuse, N. Y.

Some months ago a large brass concern in Bridgeport, Conn., took one of these "Incinerites" and began a series of experiments. We understand that in the neighborhood of ten "Incinerites" are now in use in that factory; not as a *battery* of sweepings consumers, but as we are told, the "Incinerites" are located in various sections of the company's premises, where sweepings can quickly and easily be handled into the burners, without carrying them a distance to one central point.

## AUTOMATIC ORIFICE METER CONTROL





where $\frac{12W}{62.3}$ = weight per cu. ft. of water.

H = differential pressure in inches of water.

W = weight per cu. ft. of gas.

From the above reasoning it is evident that the velocity varies as the square root of the differential pressure or the differential pressure varies as the square of the velocity.

Having a recording instrument of any fixed size for the purpose of recording the differential pressure it is desirable to limit the operation of the meter so that the record occupies but 75% or even less of the available space. With instruments capable of recording pressures of 0 to 100 inches, which are commonly used, it is desirable to keep the record between 10 and 70 inches. This limiting of the record space directly affects the range of volume of the meter.

Frequently where gas is measured for city consumption the range of flow varies from one to twelve with different seasons of the year. To affect such a measurement with orifice meters it is necessary to have a number of meters and provide means of turning them on and off in conformity with the changes of flow. This is ordinarily performed by attendants, but to avoid this expense the differential relief valve described herewith was developed. A cut showing the detail section of the valve is shown in Fig. 3A. The general appearance is shown in Fig. 3-B.

This valve is of the positive opening type controlled by gas pressure which is in turn controlled by the balancing of forces between a differential diaphragm and weighed lever. The motion from the weighted lever is transmitted to a pair of pilot valves, one of which admits gas to the main valve diaphragm opening the main valve. The other valve is an exhaust valve for the same chamber.

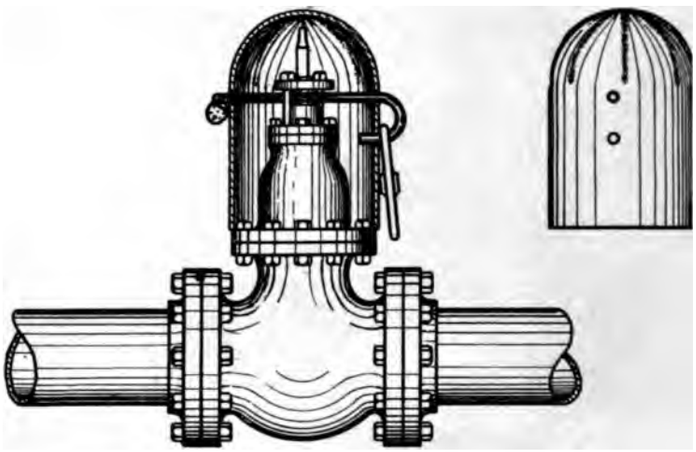
The differential relief valve is placed in the line embodying the second or other additional meters and so connected with the first meter that it is controlled by the volume of gas flowing through it, viz. differential pressure. When the differential pressure on the first meter reaches a predetermined maximum, the weighted lever is unbalanced, causing the inlet pilot valve to open. This admits pressure to the top of the main valve diaphragm and opens the main valve. The second meter is thereby put into operation, and the increased orifice area decreases the differential pressure on the two meters. The two continue to operate until the volume increases to such an extent that the differential pressure again reaches the maximum. A third meter is turned on in the same manner as before. If, however, the volume should decrease, the automatically controlled meters are shut off in reverse rotation, leaving the pilot meter only in service.

Two charts, Figs. 1 and 2, show a 24-hour record of a two-meter installation for such automatic control. It will be noted that the second meter shut off at 9:05 P. M. when the differential pressure decreased to 27". It was turned on again in the morning at 6:25 A. M. when the pilot differential pressure reached 61". Chart Fig. 1 shows meter record of pilot meter and Fig. 2 shows chart from the automatically controlled meter. Superimposed upon Fig. 1 chart is a dotted line corresponding to the record of Fig. 2.

## NON-INFLAMMABLE GATE BOX.

R. B. Lloyd, Superintendent Lines, Wichita Natural Gas Co., Bartlesville, Okla.

The above wrinkle consists of a piece of junk pipe welded on the top with a semi-clevice cut out of an old brake band with a slot cut in the pipe so as to allow the clevice to pass through the pipe under the stuffing box gland and extend through the opposite side of the gate



COMBINATION GATE BOX AND SEAL

box, with a hole in the end of the clevice to allow a lock. By hanging the gate wheel in the semi-clevice on the opposite side from the lock, not only locks the wheel to the gate, but also locks the gate at the same time.

This makes a gate box which is non-inflammable and much cheaper and more durable than the ordinary wooden box.

## METHOD TO PREVENT USE OF UN-REGISTERED GAS BY TIPPING.

G. C. Reed, Telephone Foreman and Meter Inspector, Lone Star Gas Company, Fort Worth, Texas.

A B

TIPPING METER TO PREVENT USE OF UNREGISTERED GAS.

Figure "A" shows post with slot in which valve stem works, as in present usage.

Figure "B" shows post with circular hole instead of slot. This hole would confine valve stem in such a manner that stem would have no upward and downward play if meter were tipped.

## INTERIOR FIREPLACE DESIGN.

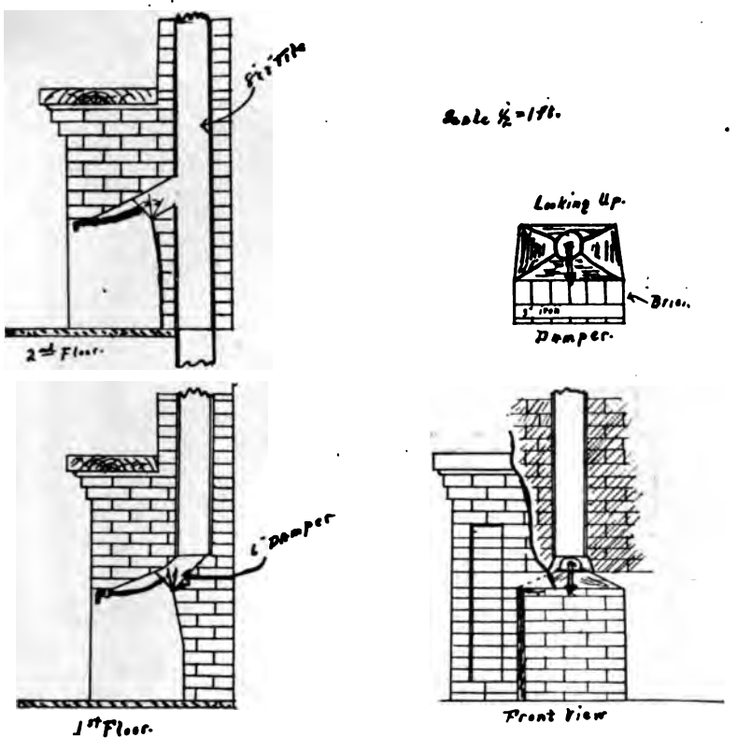
F. R. Hutchkinson, Sales Manager, The Gas Appliance Company, Cleveland, Ohio.

Many complaints are reported to gas companies because of improper construction of fireplaces and flue outlets, causing products of combustion to escape in rooms where grates or logs are used.

Architects seldom, if ever, specifiy how fireplace interiors and flue outlets should be constructed.

One way of overcoming, at least in a measure, complaints of this kind would be to have fireplace interiors built as illustrated.

First, depth should be about as indicated on drawing, with straight sides.




INTERIOR FIRE PLACE DESIGN.

Front of top, roof or ceiling should be lower than rear to provide a canopy shaped roof to retain and convey smoke or products of combustion, where wood, coal or gas is employed, to flue outlet.

Flue outlet made large, with damper for regulation to care for any fuel used.

Opening leading to flue should be made at an angle as shown, so products of combustion can freely pass to chimney.

Two sets of drawings made, one illustrating flue above center of fireplace opening, the other at rear.

I would suggest, and recommend, that the Association adopt this as a "standard fireplace interior" and have it printed in large quantities, sold to gas companies at cost and distributed by them without charge to every architect and builder in every city.

## MEASURING PIPE WHEN PILED.

A. L. Schneider, Pittsburgh & West Virginia Gas Company, Clarksburg, W. Va.

The photograph shows a steel folding rule for measuring casing pipe or tubing, especially when piled where it would require two or three men to tear down and repile in order to get a correct measurement. With this rule one man can measure in half the time that it would take two or three men to do.

It comprises six sections, each four feet two and a half inches long, riveted together so that when extended both simultaneously and found to his sorrow that the gas one section will overlap the other two and a half inches, permitting a bolt to be put through to keep the rule from

RULE FOR MEASURING PILED PIPE.

folding when in use. They are fastened with the screwdriver wrench as seen in the picture. The end to go through the joint has a pin one inch long and a quarter of an inch thick riveted on, projecting on the blank side of the rule. When measuring casing the rule is put inside the joint, pin end forward and pushed through joint until the pin is out of the other end, then pulled back slightly until the pin stops against the end of the joint.

Commencing at fifteen feet from the pin, the rule is graduated in half and inch lines marked with a file, then stamped with small figures at the inch marks and larger figures designating the feet. This of course is on the upper side, the pin projecting from the lower side. The wheel is to allow the end to travel over the ground as it is withdrawn from the joint after being measured.

Material required to make this rule:

24 feet 1/3" x 1" Iron or Steel
5 1/4" x 1/2" Stove Bolts
6 1/4" x 1/2" Rivets
2 1/4" x 2" Rivets
1 1/2" x 3" Rivets
1 Screwdriver-wrench.

## IMPROVED PILOT FOR JACKING PIPE.

Geo. B. Sipe, Vice-Pres. and Gen. Man., Louisiana Gas Co., Shreveport, Louisiana.

The ordinary pilot used in jacking pipe under paving, across streets, and elsewhere, does not provide against:

(1) The pipe being deflected from a straight course by coming in contact with pebbles or other obstructions, nor

(2) Having to leave a string of pipe in the ground, if any obstruction is encountered that necessitates beginning again, nor

(3) Friction along the entire length of the line.

By using a reducer and plug, making the pilot much larger than the pilot ordinarily used, overcomes all the difficulties enumerated above.

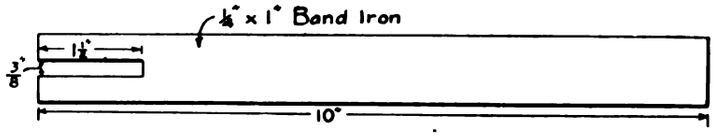
The long pointed pilot is easily deflected from a straight course by a pebble. The blunt reducer and plug will push it aside.

Should an obstruction be encountered that cannot be passed or pushed aside, by digging down to and removing the reducer allows the removal of pipe.

We have jacked eight-inch pipe, by using such a pilot, a distance of two hundred feet without deflecting but a few inches; we have also jacked ten-inch pipe successfully a distance of over forty to sixty feet under railroad tracks. Try it.

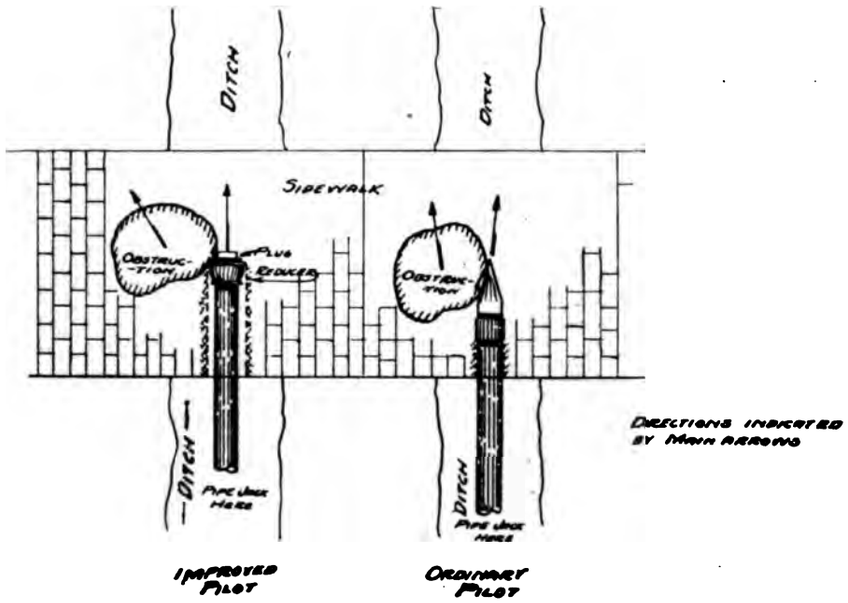
## SAFETY-FIRST METER SHUT-OFF WRENCH.

V. O. Goble, the East Ohio Gas Co., Ravenna, Ohio.




## METER SHUT-OFF WRENCH

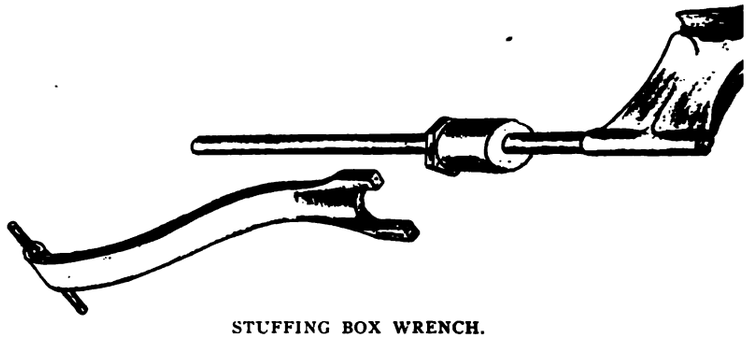
Provide a wrench as shown, made of 1/4" iron and give one to each consumer. This wrench to be kept at the meter at all times to shut off the gas in case of emergency.




PILOT FOR USE UNDER PAVEMENT.

## STUFFING BOX WRENCH.

Leo Svoboda, The East Ohio Gas Co., Cleveland, Ohio.



STUFFING BOX WRENCH.

This wrench has met all requirements as a suitable tool for the stuffing box on the flag staff of a tin meter. The concave feature at the jaws of the wrench permit a solid grip on the nut.

## ECONOMY IN HOUSE-HEATING.

**Broadley Speaking, Every Unit of Heat in the Natural Gas Employed, Made Effective in Gas Company Official's Home.**

MR. H. C. REESER, Assistant to the President of the Ohio Fuel Supply Company, has adopted a means of house-heating that is most clever.

SHOWING NATURAL GAS AND COAL HEATING PLANT.

To the left in our picture of the heating system will be seen a gas-heated boiler, while to the right, and coupled with the former, is a coal-heated boiler. It is a case of tying-in these two methods. Either or both may be employed. This is evidence of the fact that gas company officials are living up to their teachings. These very men are applying their advice themselves in a thoroughly practical manner.

Mr. W. Re. Brown, editor of "T.G.M.," is the author of this description of the heating plant installed in Mr. Reeser's residence in Columbus, Ohio. The item appeared in "The Gas Magazine," the house organ of the Ohio Fuel Supply Company, to which we are indebted for the two illustrations published herewith. Mr. Reeser, we are told, was taken quite unaware by the publication of the article, and is still wondering how Mr. Brown secured the photographs. Trust a magazine editor to get the "dope."

## NEW DEVELOPMENT COMPANIES AT DUNNVILLE, ONT.

TWO new concerns have recently been chartered for the purpose of operating leases held by them in the oil and gas fields around Dunnville. The Diener Gas & Manufacturing Company, Ltd., of which Eugene F. Diener is President, is capitalized at $100,000. This company proposes later to add to its activities the manufacturing of steel, iron, or clay products, the rate for power and shipping facilities being favorable.

Gardner, Phelps & Company, of 25 Broadway, New York, are fiscal agents for the Natural Gas Company, Ltd., which has a capital stock of $3,000,000, Mr. Fred Weinberg being President, and Mr. E. F. Diener, Vice-President and Manager. Mr. W. F. Horey of the General Electric Company is Treasurer, and Mr. J. Marshall of New York, is Secretary.

These two companies control leases covering several thousand acres in the Dunnville field, and have several wells completed which are good producers.

RESIDENCE EQUIPPED WITH NATURAL GAS AND COAL HEATING UNITS.

## RAISE IN GAS-RATE TO PREVENT SUSPENSION OF FACTORY OPERATIONS.

SEVERAL weeks ago when the Clarksburg Light & Heat Company of Clarksburg, West Va., applied to the Public Service Commission for permission to increase its rates which at present are as low as 8 cents per thousand, the request was denied by that body, domestic consumers objecting to the raise. The Company then announced that it will be unable to furnish manufacturers with the usual supply during this winter at the same rate as formerly, and warned all industrial users that the gas supply will be cut off.

Following this announcement the local Board of Trade interested itself in behalf of industrial plants, and has arranged that the matter be presented again to the Public Service Commission with the recommendation that the raise in rates be granted. The petition prepared by the Board of Trade states that manufacturers have signified their willingness to pay 12 cents per thousand for gas.

## BOWDOIN DOME, MONTANA, MAY BE RESERVOIR OF OIL OR GAS.

THE Bowdoin dome, near Malta, in Northeastern Montana, has been under investigation by the United States Geological Survey, Department of the Interior. It is stated in a description of this dome, that the presence of natural gas has been detected in some wells drilled for water, and deep test drilling for gas is recommended.

The dome was examined in the summer of 1916 by A. J. Collier, a geologist of the United States Geological Survey.

The gas already found is supposed to have been contained in the Eagle sandstone, at a depth of about 600 feet. If this sand should not prove to be commercially productive it is possible that oil might be found in sands near the base of the Cretaceous rocks, about 1.500 feet below the Eagle sand.

A copy of Bulletin 661-E may be obtained free of charge from the Director, U. S. Geological Survey, Department of the Interior, Washington, D. C.

## RECENT BULLETINS ISSUED BY WORTHINGTON PUMP AND MACHINERY CORPORATION.

Among the publicity matter issued this fall by the Worthington Pump & Machinery Corporation of New York, are four Bulletins descriptive of the large power units built by this concern.

Bulletin W-400 describes and illustrates the Worthington outside packed Plunger Pattern Pumps for general service. These are furnished in many sizes and capacities.

Bulletin W-500 deals comprehensively with Worthington Pot Valve Pressure Pumps for heavy pumping work. The bulletin illustrates a number of patterns and sizes for the various uses to which this machinery is applied.

Bulletin W-308 is devoted to the description of Worthington Duplex Piston Pattern Pumps, accompanied by fine half-tone illustrations of various forms and types of this pump, which is built for general purposes where water pressure is 150 pounds per square inch or less.

Bulletin L-532-A, showing gas compressors, gas expanders and vacuum pumps for the recovery of gasoline from casing-head gas.

Copies of these Bulletins may be obtained upon application to the Worthington Pump & Machinery Corporation, 115 Broadway, New York.

## GAS AND FLAME SERVICE NEW IN U. S. ARMY.

A BRANCH of service new in this country has been established, to be known as the gas-and-flame service. The men who join this branch of the army will fight the enemy with liquid fire, gas, chemicals, and other forms of modern torture, invented since this mode of warfare has been adopted by the central allies.

Among the types of men specially needed for this service are: Chemists (analytical, research and manufacturing), chemical workers, powdermen, men experienced in gas manufacture, machinists, automobile repairmen, men able to operate and repair gas or steam engines, pipe fitters, electricians, designers, interpreters, carpenters, blacksmiths, plumbers, boilermakers and chauffeurs.

## FINANCIAL REPORT.

BY JO. P. CAPPEAU SONS.

OCTOBER 1st TO 20th INC.

| | Open | High | Low | Last |
|---|---|---|---|---|
| Caney River Gas | .. | .. | .. | 57 |
| Columbia G. & E. | 37 | 37 | 33 | 34 |
| Fayette Gas | .. | .. | .. | 120 |
| Mfg. L. & H. | 63⅝ | 64 | 57½ | 58½ |
| Ohio Fuel Supply | 48¼ | 48¼ | 44½ | 47⅞ |
| Ohio Fuel Oil | 18⅞ | 18⅞ | 17 | 17¼ |
| Oklahoma Gas | 29 | 29½ | 26½ | 27 |
| Osage & Oklahoma | .. | .. | .. | 130¼ |
| Pgh. Oil & Gas | 6⅝ | 6⅝ | 6 | 6⅛ |
| Pure Oil Com. | 24 | 24¾ | 24¼ | 24½ |
| Cent. Kentucky Gas | .. | .. | .. | 22 |
| Lone Star Gas | 100 | 100 | 98½ | 99 |
| Union Gas | 170 | 170 | 169 | 169 |

# RESULTS OF DRILLING---LATEST REPORTS

## PENNSYLVANIA FIELD.

### ALLEGANY FIELD.

Redmond et al., Empire, Ltd..... Dry
Fee, Chas. Phillips ..... Dry
Ballard, Empire Ltd. ..... Gas

Dry ..... 2
Gas ..... 1

### BRADFORD FIELD.

Lot 27, C. of B. G. & P. 15 ..... Dry
Bingham 142, South Penn Oil 26 ..... Gas

### MIDDLE FIELD.

Weber, E. Pequignot 3 ..... Dry
Jocelyn, Proper, Brinton & Co. 9..... Dry
Fullerton, Proper & Co. 1 ..... Dry
Johnson, Triumph Oil 13 ..... Gas
Johnson, Triumph Oil 14 ..... Gas
Johnson, Triumph Oil 15 ..... Gas
Lot 377, Penn Oil 1 ..... Dry

Dry ..... 4
Gas ..... 3

### VENANGO-CLARION.

Ross, E. E. Humes & Co. 15..... Dry
J. S. Stover, S. P. McCalmont Estate 1 ..... Gas
Winkelman, S. P. O., M. D. 1..... Dry
Shannon, Bly et al 1 ..... Dry
Shreffler, John Shreffler 2 ..... Dry
Clarion County—
Mong, Mitchell, Mong et al 4 ..... Dry
Ehler, Bangert et al 3..... Dry
Hearst, L. S. Kenemuth 2 ..... Gas
Knox, J. B. Knox et al 3..... Dry
Jones, O. H. Culbertson 28 ..... Dry
Snyder, Mong & Co. 1 ..... Gas
Patterson, U. N. G. ..... Dry

Dry ..... 9
Gas ..... 3

### BUTLER-ARMSTRONG.

Henry, McElhaney & Co. 1 ..... Gas
Gross, A. H. Gross & Co. 1 ..... Gas
Albaugh, Albaugh & O'Harra 2 ..... Gas
Rider, Campbell et al 1..... Dry

Dry ..... 1
Gas wells ..... 3

### SOUTHWEST PENNSYLVANIA.

Dorseyville—
Brown, Gunderman Oil 1 ..... Dry
Kuhlber, Kuhlber Oil 1 ..... Dry
Ingomar—
Brooker, Brooker & Snyder 1..... Dry
Gray, Wildwood Oil 1 ..... Dry
Gray, Hoffman & Co. 1 ..... Dry
Strayble, Sauers & Co. 1 ..... Gas
Duff City—
Aiken, So. P. O., M. D. 4 ..... Dry
Rosenbauer, Sohn & Co. 1 ..... Dry
Emerick, J. Keown 2 ..... Dry
DeSau, American N. G. 1 ..... Dry
Cree, Mann & Co. 1 ..... Dry
McClintick-Marshall Co., McClintick-Marshall Co. 3 Gas
Beaver County—
Purdy, T. Stoops & Co. 1 ..... Dry
Swerlingen heirs, Crown Petroleum 16 ..... Dry
Frazier, New York parties 1 ..... Dry
Jones, Tope & Co. 1 ..... Dry
Milltown—
Davidson heirs, Peoples Gas 1 ..... Dry
Mt. Morris—
Kemp, Peoples Gas 1 ..... Gas
Phillips, Peoples Gas 1 ..... Gas
Rush, Peoples Gas 1 ..... Gas
Wendt, Carnegie Gas 1 ..... Gas
Wendt, Carnegie Gas 2 ..... Gas
Isminger, Mfrs. L. & H. 1 ..... Gas
Cooper, Mfrs. L. & H. 1 ..... Gas
Conklin, Mfrs. L. & H. 1 ..... Gas
Bane, Phila. Co. 1 ..... Gas

Dry ..... 15
Gas ..... 11

## WEST VIRGINIA.

Mannington—
Flesher, Reserve Gas 2 ..... Gas
Marts, So. P. O. 2 ..... Dry
Kinsey, Hope Gas 3 ..... Gas
Hurst, Phila. Co. 1 ..... Gas
Sherwood, Phila. Co. 1..... Gas
Cox, Hope Gas 1 ..... Dry
Phillips, So. P. Oil 13 ..... Dry
Harker, Hope Gas 3 ..... Gas
Shriver, M. V. Oil 3 ..... Gas
Tennant, B. A. & M. O. & G. 3..... Gas
Wetzel and Tyler—
Higginbottom, Carnegie Gas 1 ..... Gas
Smith, Hope Gas 3 ..... Gas
Higginbottom Phila. Co. 2 ..... Gas
Villers, So. P. O. 1 ..... Gas
Lemasters, Mfrs. L. & H. 1 ..... Gas
Ice, Hope Gas 1 ..... Gas
Roberts heirs, Phila. Co. 3 ..... Gas
Metz heirs, Phila. Co. 1 ..... Gas
Riggs, Pure Oil Prod. 9 ..... Dry
Richbaugh, Kite Oil 1 ..... Gas
Marshall County—
Turner, Mfrs. L. & H. 1 ..... Gas
Theil, Carnegie Gas 2 ..... Gas
Higgs, Fry O. & G. 1 ..... Dry
Sistersville—
Archer, Reno Oil 14 ..... Dry
Wood County—
Higgins, Angus & Co. 2 ..... Dry
Triplett, Laughton Oil 1 ..... Dry
Sharp, Bills & Co. 1 ..... Dry
Sharp, McClure & Smith 1 ..... Dry
Ritchie County—
Wilson, So. P. O. 1..... Dry
Hall, Griffin Prod. 6 ..... Dry
Rymer, I. O. & G. P. 1 ..... Dry
Pew, German National Bank 9 ..... Dry
Rexroad, Walnut Tree Oil 1 ..... Dry
Hardman, So. P. O. 1 ..... Gas
Wirt County—
Richter, Hope Gas 1 ..... Dry
Lawson, Alford & Co. 1 ..... Dry
Gilmer County—
Dodd, Carnegie Gas 1 ..... Gas
Lamm, Carnegie Gas 2 ..... Gas
Maxwell heirs, Phila. Co. 2 ..... Gas
Meaner, Phila. Co. 1 ..... Gas

Meaner, Phila. Co. 2 ..... Gas
Swiger, Carter Oil 8 ..... Gas
Pleasants County—
Meanor, St. Marys Oil 2 ..... Dry
Boley, St. Marys Oil 1 ..... Dry
Griffin, High Grade Oil 1 ..... Gas
Calhoun County—
Haddox, Hope Gas 1 ..... Dry
Lincoln County—
Rice, Huntington Dev. & Gas 3 ..... Gas
Nicholas, Harshburger O. & G. 1 ..... Gas
Kanawha County—
Sunday Creek Coal Co., U. F. G. 11 ..... Gas
Ward heirs, Cabin Creek Gas 16 ..... Dry

Dry ..... 21
Gas ..... 29

## SOUTHEASTERN OHIO.

Woodsfield—
Burkhart, John Loffland & Co. 1 ..... Dry
Perry County—
Donnelly Bros., Curtis, Aiken & Co. 6 ..... Dry
Clark, Carter Oil 1 ..... Dry
Ketchem, Powell, Baird & Co. 6 ..... Dry
Rodgers Bros., Ruth & Long 14 ..... Dry
Weaver, Thos. O'Conner & Co. 24 ..... Dry
Hocking County—
Starr, Plymouth O. & G. 2 ..... Dry
Price, Cochran, Funk & Co. 8 ..... Dry
Dawley, W. W. Vensel 1 ..... Dry
H. V. P. Co., Chartiers Oil 128 ..... Dry
Knox and Holmes—
Gardner, C. H. & D. O. 1 ..... Gas
Sapp, O. F. S. 1 ..... Dry
Fairfield County—
Trout, Carter Oil 1 ..... Dry
Muskingum County—
Fleming, Ohio Cities Gas 3 ..... Dry
Tweed, D. D. Flanigan 1 ..... Gas
Noble County—
Shafer, Leidecker & Stoughton 1 ..... Dry
Macksburg—
McBride, Phillips & McBride 1 ..... Dry
Craig, McManus & Seely 1 ..... Dry
Heddleson, Glenville O. & G. 6 ..... Dry
Morgan County—
Van Fossen, Penn O. & G. 2 ..... Dry
Athens County—
France, W. W. Rumbley 6 ..... Dry
Grovner, Geo. Washburn 2 ..... Dry
Marietta—
Breckenridge, Oil City Trust Co. 15 ..... Dry
Deuffer, C. H. Mervine & Co. 1 ..... Dry
Yates, E. Clark 2 ..... Dry
Salisberry, Betts & Co. 5 ..... Dry
Riggs, J. H. Kiggins & Co. 10 ..... Dry
Hutchinson heirs, Wickersham & Co 3 ..... Dry
Bowman, J. M. and C. F. Speary 64 ..... Dry
Myers, Lambert & Johnson 1 ..... Dry
Myers, Lambert & Johnson 2 ..... Dry
Carroll County—
Baxter, Goldstein & Co. 1 ..... Dry
Jefferson County—
Sapp, Berea Oil 1 ..... Dry
Blackburn, Wm Dean & Co. 1 ..... Dry
Columbiana County—
Hoffman heirs, Kuhn Oil 2 ..... Dry
Belmont County—
Perkins, Borcher & Co. 8 ..... Dry
Boston, N. G. Co. of W. Virginia 1 ..... Dry

Dry ..... 35
Gas ..... 2

## PENNSYLVANIA FIELDS.

### SUMMARY OF OPERATIONS.

| | Comp. | Prod. | Dry. | Gas. |
|---|---|---|---|---|
| Allegany | 12 | 17 | 2 | 1 |
| Bradford Field | 41 | 134 | 1 | 1 |
| Middle Field | 32 | 54 | 4 | 3 |
| Venango-Clarion | 68 | 194 | 9 | 3 |
| Butler-Armstrong | 18 | 30 | 1 | 3 |
| Southwest Pennsylvania | 44 | 78 | 15 | 11 |
| West Virginia | 122 | 1,088 | 21 | 29 |
| Southeast Ohio | 118 | 988 | 35 | 2 |
| Total | 455 | 2,493 | 88 | 53 |

## CENTRAL OHIO.

### LICKING COUNTY.

McKean—Jack Wertz, Columbus N. G. 2 ..... Gas
Newark—Van Vorhiss, Columbus N. G. 2 ..... Dry
Liberty—W. C. Neff, Ohio Fuel Supply 2 ..... Gas

Dry ..... 1
Gas ..... 2

### FAIRFIELD COUNTY.

Walnut—Daubmire, Logan G. & F. 2 ..... Dry

### KNOX COUNTY.

Union—Simon Miller, Ohio Fuel Sup. 1 ..... Gas

### ASHLAND COUNTY.

Green—Sol. Peterson, Ohio Fuel Sup. 1 ..... Gas
Hanover—W. Black, Ohio Fuel Sup. 1 ..... Gas
G. O. Brenstuhle, Ohio Fuel Supply 1 ..... Gas
J. M. Brubaker, Logan Gas & Fuel 1 ..... Dry
Mohican—T. W. Glenn, Ohio Fuel Sup. 1 ..... Gas
Geo. W. Garat, Ohio Fuel Supply 1 ..... Dry
Jackson—W. E. Gill, Ohio Fuel Supply 1 ..... Gas

Dry ..... 2
Gas ..... 5

### MEDINA COUNTY.

York—Bruntnall, Logan Gas & Fuel 1 ..... Gas
Harrisville—Winter, Ohio Fuel Supply 1 ..... Gas
Lafayette—Spitzer, Medina G. & F. 1 ..... Gas
Adam Culler, Medina Gas & Fuel 1 ..... Dry
Medina—Phil. Kessler Medina G. & F. 1 ..... Dry
Hincklet—Warner, Ohio Fuel Supply 1 ..... Dry

Dry ..... 3
Gas ..... 3

### WAYNE COUNTY.

Congress—D. & M. Naftzger, Logan Gas & Fuel 2 ..... Dry
Chester—Gearhart, Logan Gas & Fuel 1 ..... Dry
Cannan—Armstrong, Ohio Fuel Supply 1 ..... Gas
J. Gearhart, Ohio Fuel Supply 5 ..... Gas
Hoskins-Owens, Logan G. & F. 1 ..... Gas
S. & H. Ault, Medina Gas & Fuel 1 ..... Gas
Wayne—Clyde Armstrong, Ohio F. Sup. 1 ..... Gas
Clinton—A. D. Smetzer, East Ohio Gas 1 ..... Dry
E. I. Craig, East Ohio Gas 1 ..... Gas
Franklin—Fair, Buckeye Gas & Fuel 5 ..... Gas

Dry ..... 3
Gas ..... 7

RICHLAND COUNTY.

| | |
|---|---|
| Monroe—Applegate, Logan Gas & F. 4 | Gas |
| A. E. Peterson, Logan Gas & Fuel 2 | Gas |
| C. C. Baughman, Logan Gas & Fuel 1 | Dry |
| Worthington—J. Cole, Ohio Fuel Sup. 1 | Dry |
| Dry | 2 |
| Gas | 2 |

CUYAHOGA COUNTY.

| | |
|---|---|
| Dover—G. W. Standen, Logan G. & F. 1 | Gas |
| C. & J. Boland, Logan Gas & Fuel 2 | Gas |
| J. M. Cahoon, Logan Gas & Fuel 1 | Dry |
| W. H. Lawrence, Logan Gas & Fuel 1 | Dry |
| J. W. Clemens, East Ohio Gas 1 | Dry |
| J. H. Borth, East Ohio Gas 1 | Gas |
| Dry | 3 |
| Gas | 3 |

VINTON COUNTY.

| | |
|---|---|
| Richland—I. Nixon, Ohio Fuel Supply 1 | Gas |
| Chas. Sowers, Ohio Fuel Supply 2 | Gas |
| S. M. Woltz, Ohio Fuel Supply 1 | Gas |
| W. A. Henderson, Ohio Fuel Supply 1 | Gas |
| Ella Gibson, Ohio Fuel Supply 1 | Gas |
| C. O. Martindill, Ohio Fuel Sup. 1 | Gas |
| Wm. Harper, Ohio Fuel Supply 1 | Gas |
| Joshua Sands, Ohio Fuel Supply 2 | Gas |
| A. N. Burr, Ohio Fuel Supply 1 | Dry |
| B. Epstine, Logan Gas & Fuel 2 | Gas |
| Harrison—Cora Harper, Ohio Fuel S. 1 | Dry |
| Asa Maxwell, Ohio Fuel Supply 1 | Gas |
| Eagle—G. W. Tatman, Logan G. & F. 1 | Dry |
| Dry | 3 |
| Gas | 10 |

HOLMES COUNTY.

| | |
|---|---|
| Ripley—Garner, Buckeye State G. & F. 1 | Gas |
| Mechanics—J. G. Conrad, Buckeye State G. & Fuel 1 | Dry |
| Washington—Shively, Logan G. & F. 2 | Gas |
| Berlin—J. J. Yoder, Medina Gas & Fuel 1 | Dry |
| Dry | 2 |
| Gas | 2 |

JACKSON COUNTY.

| | |
|---|---|
| Washington—Lively, Ohio Fuel Supply 1 | Dry |
| Jane Cox, Ohio Fuel Supply 1 | Dry |
| L. Poland, Ohio Fuel Supply 1 | Gas |
| Dry | 2 |
| Gas | 1 |

PERRY COUNTY.

| | |
|---|---|
| Thorn—W. Neal, Columbus Natural Gas 2 | Gas |
| Harvey Roberts, Hesiey Gas 1 | Gas |
| Gas | 2 |

HOCKING COUNTY.

| | |
|---|---|
| Salt Creek—Wilkinson, Logan Gas & F. 2 | Gas |
| Wm. Tisdall, Logan Gas & Fuel 2 | Gas |
| G. B. Williamson, Ohio Fuel Supply 2 | Gas |
| Gas | 3 |

COSHOCTON COUNTY.

| | |
|---|---|
| Tiverton—G. Hunter, Logan Gas & Fuel 1 | Dry |
| Abe Simons, Logan Gas & Fuel 1 | Gas |
| Dry | 1 |
| Gas | 1 |

## CENTRAL OHIO FIELD.

SUMMARY OF WORK.

| | Comp. | Prod. | Dry. | Gas. |
|---|---|---|---|---|
| Licking | 3 | 0 | 1 | 2 |
| Fairfield | 1 | 0 | 1 | 0 |
| Knox | 1 | 0 | 0 | 1 |
| Ashland | 7 | 0 | 2 | 5 |
| Medina | 7 | 20 | 3 | 3 |
| Lorain | 0 | 0 | 0 | 0 |
| Wayne | 11 | 20 | 3 | 7 |
| Richland | 4 | 0 | 2 | 2 |
| Cuyahoga | 6 | 0 | 3 | 3 |
| Vinton | 13 | 0 | 3 | 10 |
| Holmes | 4 | 0 | 2 | 2 |
| Jackson | 3 | 0 | 2 | 1 |
| Perry | 2 | 0 | 0 | 2 |
| Hocking | 3 | 0 | 0 | 3 |
| Coshocton | 2 | 0 | 1 | 1 |
| Marion | 0 | 0 | 0 | 0 |
| Total | 67 | 40 | 23 | 42 |

## LIMA FIELD.

WOOD COUNTY.

| | |
|---|---|
| Henry—W. I. Borough, Harris & Welch 1 | Dry |
| Bloom—P. S. Painter, Beaver Oil 6 | Dry |
| Dry | 2 |

HANCOCK COUNTY.

| | |
|---|---|
| Cass—Theo. Karn, Ohio Oil 15 | Dry |
| Washington—E. E. Robbins, Gardner & Kelley 1 | Dry |
| Dry | 2 |

MERCER COUNTY.

| | |
|---|---|
| Center—Dayton Fast, G. L. Watson 1 | Dry |
| Missenwa—Sunderman, Kelley Co 1 | Dry |
| Dry | 2 |

SENECA COUNTY.

| | |
|---|---|
| Pleasants—S. Schriver, Sun Co. 8 | Dry |

GIBSON COUNTY.

| | |
|---|---|
| Washington—J. W. Phillips, Ohio Oil 1 | Dry |

PIKE COUNTY.

| | |
|---|---|
| Madison—H. B. Mallott, Ohio Oil 1 | Dry |
| Washington—Thomas, A. B. Bement 15 | Dry |
| Patoka—H. Crawford, Brandeberry & Co. 4 | Dry |
| Dry | 3 |

SULLIVAN COUNTY.

| | |
|---|---|
| Hamilton—H. T. Osborn, A. T. Osborn 1 | Dry |
| Juda Gambill, Oscar Eaton & Co. 1 | Dry |
| Dry | 2 |

## KENTUCKY-TENNESSEE.

WAYNE COUNTY.

| | |
|---|---|
| Cooper—A. J. Roberts, Wood Oil 29 | Dry |

WOLFE COUNTY.

| | |
|---|---|
| Stillwater—S. Cecil, Sands Oil & Gas 2 | Dry |

MORGAN COUNTY.

| | |
|---|---|
| Cannel City—Adell, Eastern Gulf Refg. 1 | Dry |

ESTILL COUNTY.

Irvine—W. M. Hamilton, Ohio Oil 23 ..... Gas
W. A. Alexander, Cumberland Prod. & Refg. 19... Dry
Wm. Adams, Kentucky Pet. & Produce 11..... Dry

Dry ..... 2
Gas ..... 1

POWELL COUNTY.

Pilot-Ashley—E. Baker, Cherokee Oil 6 ..... Dry
James Mays, Ohio Oil 2 ..... Dry
W. H. Stewart, Ohio Oil 2..... Dry
Sanford Hall, Ohio Valley Oil 1 ..... Dry
R. Townsend, Ohio Valley Oil 1 ..... Dry
Dan McCoy, Wood Oil 10 ..... Dry

Dry ..... 6

LEE COUNTY.

Beattyville—Wm. Palmer, Omar Oil 1 ..... Dry
Wiler, Rex Oil 1..... Dry

Dry ..... 2

BATH COUNTY.

Olympia—P. Schultz, B. F. Roberts & Co. 1..... Dry

ALLEN COUNTY.

Scottsville—Mose Fisher, Republic Oil 10 ..... Dry
B. Dalton, Anderson & Dulin 1 ..... Dry

Dry ..... 2

LINCOLN COUNTY.

Waynesburg—Faulkner, Wood Oil 1 ..... Dry

KNOX COUNTY.

Barbourville—Wm. Carnes, Empire G. & Fuel 1 .... Dry
A. Wade Little Driscoll & Co..... Dry
Bowling Green—Kirby, Walmer Oil 1 ..... Gas

WARREN COUNTY.

Glasgow—Pitcock, S. A. Francis & Co. 1..... Gas
Austin, Thompson & Co. 3..... Gas

Gas ..... 2

GRAYSON COUNTY.

Leitchfield—W. B. Hall, Grayson County O. & G. 1 Dry
Hunter, Kentucky Oil & Refining 1..... Gas

La RUE COUNTY.

Silvia—W. N. Nichols, W. D. Shira 1 ..... Dry

GEENUP COUNTY.

Fullerton—Clary, Jesse T. Hare & Co. 1..... Dry

GREEN COUNTY.

Greensburg—Chaney, Grayson County Oil & Gas 1.. Gas

TAYLOR COUNTY.

Campbellsville—White, Grayson County Oil & Gas 1 Gas

MENIFEE COUNTY.

Frenchburg—Warren Stoner & Co. 1..... Gas

## ILLINOIS FIELD.

CLARK COUNTY.

Parker—Mrs. A. R. Hays, Kewanee O. & G. 10..... Dry

CRAWFORD COUNTY.

Honey Creek—Maxwell, Guthrie & Co. 2..... Gas
J. Gaddis, Fisher Oil 1 ..... Dry
J. Malcolme, Fisher Oil 2 ..... Dry

Dry ..... 2
Gas ..... 1

LAWRENCE COUNTY.

Dennison—A. B. Jordan, Ohio Oil 21 ..... Gas
C. M. Irwin, Ohio Oil 7 ..... Dry
James Price, F. Hartman & Co. 1..... Dry
Wm. Jones, Maple Oil & Gas 12 ..... Dry

Dry ..... 3
Gas ..... 1

CLINTON COUNTY.

Meridian—Price, C. J. Wrightsman 1 ..... Dry
Lake—E. Grefe, C. J. Wrightsman 1 ..... Dry

Dry ..... 2

WABASH COUNTY.

Mt. Carmel—Poor Farm, Stultz & Co. 1..... Dry

## MID-CONTINENT.

## KANSAS.

MONTGOMERY COUNTY.

28-32-16, Lauget, F. E. Miller et al 1..... Gas
33-32-16, Jones, J. M. Day et al 1 ..... Dry
32-33-14, Wiley, Stebbins Oil 2 ..... Dry
33-32-16, Jones, J. M. Day et al 1..... Dry
5-35-15, Mehaffy & Thompson & Burton 1 ..... Dry
33-34-15, Hanlon, Samuel & Mahutska 3 ..... Dry
6-35-15, Sherman, Calvin Brett Oil 3..... Dry
26-34-15, Douglass, Jake Burman 1 ..... Dry
9-33-15, Crabham, National Refining 2 ..... Dry
10-33-15, Thompson and others 1 ..... Dry
28-31-12, Ballenger, West & Hazlett 4 ..... Gas
28-32-16, Lange, F. E. Miller et al 1..... Dry
5-31-16, Brinkman, Kansas Oil & Gas 1..... Dry
11-34-14, Crittenden, A. W. Lucas 1 ..... Dry

Dry ..... 12
Gas ..... 2
Gas production .....7,250,000

CHAUTAUQUA COUNTY.

16-33-11, Brant, P. O. & G. 7..... Gas
16-33-11, Brant, P. O. & G. 6 ..... Gas
11-32-12, Gregory, Sachem Oil 1 ..... Dry
26-34-10, Bird, Denman Bros. 8 ..... Gas
11-35-10, Hopkins, Roth & Farrout..... Dry

Dry ..... 2
Gas ..... 3
Gas production .....6,000,000

BUTLER COUNTY.

23-26- 4, Bishop, Carter Oil 1..... Dry
3-26- 5, Kaufman, Peerless Petroleum 2 ..... Dry
11-26- 4, Orban, Carter Oil 12 ..... Gas
35-25- 4, Dillenbeck, Dearing-Marshall 13 ..... Gas
26-27- 4, Skaer, Empire G. & F. 1 ..... Dry
1-28- 5, Yates, Smith & Garden 1 ..... Dry
6-29- 4, Wieford, Monitor O. & G. 2 ..... Gas
21-29- 4, Wilkie, Crescent O. & G. 2 ..... Dry
35-26- 5, Bisange, Buffalo Oil 1 ..... Dry
12-26- 5, Neff, Iroquois O. & G. 1..... Dry

Dry ..... 7
Gas ..... 3
Gas production ..... .....23,000,000

WILSON COUNTY.

27-29-14, Tucker, Crosby Drilling 1..... Dry
35-30-16, Granbie, Hamilton & Surlie 2 ..... Dry

Dry ..... 2

### NEOSHO COUNTY.

15-27-19, Mathes, L. S. Cambern 2 ..... Gas
9-27-18, Burwell, Moore Bros. & Loy ..... Gas
9-17-18, Clemons, Earlton Gas 1 ..... Gas
15-27-19, Mathen, L. C. Cambern 2 ..... Gas
10-26-19, Byrum, Neosho O. & G. 2 ..... Dry

Dry ..... 1
Gas ..... 4
Gas production ..... 2,000,000

### ALLEN COUNTY.

9-26-18, Wolf, Mendenhall & Winkler 6 ..... Dry
22-26-18, Fee, J. S. Winkler 2 ..... Dry

Dry ..... 2

### FRANKLIN COUNTY.

33-16-21, Watkins, Minor Jordan O. & G. 2 ..... Dry
27-17-21, Caylor, Sunflower O. & G. 1 ..... Gas
25-16-21, Smith, Valentine O. & G. 8..... Gas
25-16-21, Alden, Wright P. & R. 8..... Dry
22-14-21, Sloan, Kansas City parties 1 ..... Dry
36-16-21, McCullough, P. H. Lavelle 3 ..... Dry

Dry ..... 4
Gas ..... 2
Gas production ..... 2,500.000

### MIAMI COUNTY.

20-17-23, Christie, Berkowitz 1 ..... Dry
35-17-22, Phillips, Morrison & Wolfe 2 ..... Dry
33-17-22, Green, Colcord 2 ..... Gas
16-17-23, Williams. Kline et al 1..... Gas
28-16-22, Carmean, Joplin parties 1 ..... Gas
14-16-22, Maddox, Kellerstrauss 1 ..... Dry
18-17-24, Prothe, Missouri O. & G. 1..... Gas
6-18-21, Weesner W R. Stubbs et al 2..... Gas
17-16-21, Alden, Wright P & R. 7..... Dry
22-16-20, Davis, Wolf Creek O. & G. 1 ..... Dry
27-17-21, Caylor, Sunflower O. & G. 1..... Gas
7-17-22, Haight, McCandless et al 1..... Dry
6-17-22, Bothurn, Elliott et al 1 ..... Dry
5-16-22, Walthal, Wright et al 1 ..... Dry
12-18-22, Carey Sunshine Oil 12 ..... Dry
9-17-23, Posh, Standard Royalties 1 ..... Dry
13-18-24, Miller, Phillips et al ..... Dry
13-16-28, Kellarstrauss, J. P. Foster 1 ..... Dry
24-16-22, Schroeder, Lackett 1 ..... Dry
30-17-24, Gabriel 1 ..... Dry
6-17-24, J. T. Legner 1 ..... Gas
10-16-22, Bauman, Pep Oil 3 ..... Dry
33-16-22, McCullough, P. H. Lavelle 3 ..... Dry
25-17-23, Anthony, Sabine O. & M. 10 ..... Dry
31-17-26, Michaels, Greasy Bend O. & G. 5..... Gas
31-17-26, Michaels, Greasy Bend O. & G. 6..... Gas
20-17-23, Heilman, Ole Oil & Gas 1 ..... Dry

Dry ..... 18
Gas ..... 9
Gas production ..... 7,750,000

### WILDCATS.

Sumner County—
29-32- 1, W., Cann, Lock et al..... Dry
Marion County—
23-20- 2. Leppke, H. H. Breene et al 1..... Dry
Cowley County—
18-23- 7, Searle, 101 Ranch Sinclair Oil ..... Dry
9-35- 7, LeMaster, Standish Oil 1 ..... Dry
Elk County—
29-29-13, Adam, Landon et al ..... Dry

## OKLAHOMA.

### WASHINGTON COUNTY.

21-26-13, Markham, Johnson et al 3 ..... Dry
7-27-14, Powell, Howard Weber 6 ..... Dry
6-26-13, Vandeventer, National O. & D. 2..... Dry
19-28-15, Inoes, Hughes et al 1..... Dry
21-26-13, Hatton, Johnson et al 3..... Dry
14-24-13, Ames, W. M. Casey 1 ..... Dry
2-24-12, Gritts, Tidal Oil 2 ..... Dry

Dry ..... 7

### BIRD CREEK AND FLAT ROCK.

20-20-14, Taylor, Fenton Oil & Gas 1 ..... Dry
21-21-13, McLane, Tidal Oil 3 ..... Gas
28-20-14, Thompson, Henry Oil 1 ..... Dry
24-21-12, Walker, Vesta Oil 5 ..... Dry
21-21-13, Webber, M. Shear 2 ..... Dry
30-17-15, Brown, Loffland Bros. 1..... Dry
31-17-15, Simons, Edgar Oil 2 ..... Dry
23-18-16, Childers, F. V. Wright et al 5 ..... Gas

Dry ..... 6
Gas ..... 2
Gas production ..... 4,000,000

### CHEROKEE SHALLOW SAND.

13-18-15, McIntish, Lightner et al ..... Dry
28-18-15, Washington Apollo O. & G. ..... Dry
11-25-14, Weldy, Prairie O. & G. 4 ..... Dry
8-23-17, Home, Celestine Oil 6 ..... Dry
8-26-17, Allen, Tri-State Oil 3 ..... Dry
31-27-17, Woods, Capt. Harris et al 2..... Dry
27-14-17, Levine, Rock River Oil 1 ..... Dry
16-24-17, Wilson, Henton & Weible 25 ..... Dry
10-25-16, Parish, Ole Oil & Gas 7 ..... Dry
10-26-16, Foreman, Boop Seitz et al 1..... Dry
20-24-17, Miller, Alpha Oil 24 ..... Dry
22-24-17, Palmer, Bradley Oil & Gas 7 ..... Dry

Dry ..... 12

### OSAGE.

9-23- 8, Sinclair, Gulf & Osage 40..... Dry
1-26- 8, Denison, American Pipe Line 1 ..... Dry
9-29- 9, Webb, Charles Page 1 ..... Dry
5-21-10, Hu tsa me Sinclair O. & G. 22 ..... Dry
28-25-11, Indian Ter.-Ill. Oil 183 ..... Gas
16-20-10, Revard, Roxana Pet. Corp. 42 ..... Dry
16-29-10, Boulanger, Ind. Ter.-Ill. Oil 1 ..... Gas
15-29-10, Boulanger, Ind. Ter.-Ill. Oil 2 ..... Gas
9-21- 9, Charles Page 2 ..... Gas
23-27-10, Hunt, Dallas Osage 47 ..... Gas
11-25-11, Lewcinda Oil 18 ..... Gas
11-25-11, Lewcinda Oil 19..... Gas
28-25-11, Lot 285, Ind. Ter.-Ill. Oil 183 ..... Gas
36-25- 8, Riddle, Foster & Davis 9 ..... Gas
24-21-12, Turley, Vesta Oil 4 ..... Dry
10-33- 8, Henry Oil 8 ..... Dry
10-33- 8, Henry Oil 8 ..... Dry
33-25-11, Osage, Finance Oil 2 ..... Gas
24-12-12, Fee, A. Lucas 1 ..... Dry
36-24- 8, Price Oil & Gas 4..... Gas
12-26- 8, American Pipe Line 3 ..... Gas

Dry ..... 9
Gas ..... 12
Gas production ..... 51,000,000

### CLEVELAND, PAWNEE, MANNFORD, OLIVE.

| | | |
|---|---|---|
| 26-18-10. | McIntosh,Stinson et al 1 | Dry |
| 12-20-19, | County Land, Robertson et al 1 | Dry |
| 19-20- 9. | Greenwood, Robertson et al 1 | Dry |
| 24-19-10. | Hardridge E. N. Gillespie 1 | Dry |
| 14-19-17. | Lawler, Citizens O. & G. 1 | Dry |
| 4-18- 8. | Monday, Cushing Development 1 | Dry |
| 24-19-10, | Gartridge, Gypsy Oil 1 | Dry |
| 28-17- 7, | Davis, Carter Oil 10 | Dry |
| 21-20- 7, | Hosick, Prairie O. & G. 6 | Dry |
| 10-23- 8, | Osage, Henry Oil 1 | Dry |
| | Dry | 10 |

### CUSHING-SHAMROCK.

| | | |
|---|---|---|
| 28-17- 7. | Davis, Carter Oil 10 | Dry |
| 1-17- 7, | Fixico, Monitor O. & G. 1 | Gas |
| | Gas production | 10 000,000 |

### TULSA, GLENN POOL, WICEY, BIXBY.

| | | |
|---|---|---|
| 26-19-13. | Davis, Posey Oil 2 | Dry |
| 17-18-14, | Thatcher, W. F. Wilcox 1 | Gas |
| 24-18-14. | Island, Smith & Anderson 10 | Dry |
| 30-18-14, | Chisholm, Caney River Gas 2 | Gas |
| 34-18-15. | Martin, A. A. King et al 1 | Gas |
| 15-18-13. | Hobbs, Owen et al 2 | Dry |
| 21-18-13, | Bruner, Astra Oil & Gas 2 | Gas |
| 32-18-13. | Mullen, McTon Oil 1 | Gas |
| 24-18-14. | Form, Edgar Oil 5 | Dry |
| 7-17-14, | Carr, Atlantic Petroleum 1 | Dry |
| 32-17-13. | Williams, Atlantic Petroleum 16 | Dry |
| 18-16-13, | Frank Livingston Oil 1 | Dry |
| 34-16-13. | Moore, Magnolia Petroleum 2 | Gas |
| 35-16-14. | Harrison, J. Sheppard 1 | Dry |
| 33-17-13, | Allen, Elliott Bros. 5 | Dry |
| 28-17-13. | Bunger, Hastings Estate 5 | Dry |
| 25-17-14. | Lewis, Blue Ridge Oil 6 | Dry |
| 2-15-14. | Barnett, Solander Oil 3 | Dry |

### TULSA, GLENN POOL, WICEY, KELLEYVILLE.

| | | |
|---|---|---|
| 15-17-11, | Lawrence, Harrison Oil 1 | Dry |
| 31-18-12, | Heugest, H. A. Dougherty 12 | Dry |
| 20-20-14. | Taylor, Fenton Oil & Gas 2 | Dry |
| 4-16-12. | Upton, P. O. & G. 7 | Gas |
| 37-19-12, | Percy Oil & Gas 2 | Dry |
| 19-19-11, | Howard, L. B. Harding | Gas |
| 20-19-12, | Berryhill, Kewanee Oil & Gas 12 | Dry |
| 34-19-12. | Narkarkey, Percy Oil 3 | Dry |
| 17-17-11. | Clayton, Independent Mutual 7 | Dry |
| 7-18-11, | Cosar, D. L. Childs et al 2 | Dry |
| 7-18-11, | Cosar, D. L. Childs 2 | Dry |
| 1-18-12. | Rosella Fee, Aetna Oil & Gas 2 | Dry |
| 22-18-12, | Brown, Manaford Oil & Gas 6 | Dry |
| 5-19-11, | Bell, Phoenix Refining 1 | Gas |
| 22-20-12, | Lot 110, West & Hazlett 12 | Dry |
| 8-19-11, | Sunday Island, Gem Oil 1 | Gas |
| 19-19-11. | Harden, E. B. Howard 1 | Gas |
| 22-18-11. | Arkarkenny, D. D. Mickelson 4 | Dry |
| 28-18-11, | Pohcaney, Penn Okla. Oil 3 | Dry |
| 15-17-11. | Butler, Harrison Oil 1 | Dry |
| 27-18-11, | Walsh, Commendable Oil 2 | Dry |
| 26-18-10. | McIntosh, Penn Okla. Oil 8 | Dry |
| 24-16-12, | Rolland, Okla. Natural Gas 1 | Gas |
| 26-17-12. | Brown, Wilcox et al | Dry |
| 7-18-12. | Land, March Oil 6 | Dry |
| 22-18-12. | Brown, Stover & Cole 3 | Dry |
| | Dry | 32 |
| | Gas | 12 |
| | Gas production | 30,000,000 |

### OKMULGEE-MORRIS.

| | | |
|---|---|---|
| 13-16-12. | Marhsall, Fetty et al 1 | Dry |
| 13-16-11, | Jones, H. H. Galbraith | Dry |
| 13-16-11, | Dean, Carter Oil | Dry |
| 24-16-12, | Roland, Okla. Nat. Gas 1 | Gas |
| 4-16-12. | Whetstone, Prairie O. & G. 7 | Gas |
| 1-15-12. | Jones, Okla. Nat. Gas 1 | Dry |
| 8-15-11. | Williams, Hecken Camper et al 1 | Dry |
| 28-15-12. | Marshall, Rebold et al 1 | Dry |
| 20-14-12. | Flynn, Rebold et al 1 | Dry |
| 36-14-11, | Nancy, Okmulgee P. & R. 1 | Dry |
| 24-13-12. | Fields, Galbreath et al 1 | Dry |
| 31-12-12, | Rentie, Quaker O. & G. 1 | Dry |
| 10-13-14. | Morton, Wilmont et al 1 | Dry |
| 8-13-14. | Walker, Parker et al 1 | Dry |
| 9-13-14. | Whittier, King & Jones | Dry |
| 10-13-14. | W. M. Morton, C. S. Wilmont 1 | Dry |
| 6-12-14. | Daniels, L. S. Skelton 2 | Dry |
| 6-12-14. | Griffin, L. S. Skelton 1 | Gas |
| 30-14-13. | Maher, Kimbley et al 1 | Dry |
| 31-12-12. | King & Bentie, Quaker Oil 1 | Dry |
| 11-13-14. | Tucker, Hazlett & Price 3 | Dry |
| 22-16-13. | McGilbray, Baker O. & G. 3 | Dry |
| 10-13-14. | Lowe, McLain et al | Dry |
| 9-13-14. | Mason, Winget et al 2 | Dry |
| 2-13-13. | Davis, C. V. Kelly 1 | Dry |
| 32-13-13. | Hollerman, W. B. Pine 1 | Gas |
| 8-13-14. | Walker, Nuby & Stanford 2 | Dry |
| 9-13-14, | Whitten, A. D. Adcock et al 2 | Gas |
| 9-13-14. | Morton, Mathews et al 1 | Dry |
| 13-12-13. | Smith, Skilton et al 1 | Gas |
| 18-12-14. | Hutton, Kusa Spelter 1 | Gas |
| | Dry | 24 |
| | Gas | 7 |
| | Gas production | 36,000 000 |

### BALD HILL, BOOCK SAND.

| | | |
|---|---|---|
| 22-14-14. | Colbert, Hewitt & Vanhouston 5 | Dry |
| 31-14-14. | Ashley, Hanson Oil & Gas 1 | Dry |
| 35-16-14. | Kirchner, Shepard et al 1 | Dry |
| 14-13-15, | McNac, Simons et al 1 | Dry |
| 20-15-13. | Hully, Hampton et al 1 | Dry |
| 22-15-13. | Anderson, C. R. Black 3 | Dry |
| 27-15-13. | Anderson, C. R. Black 2 | Dry |
| 33-15-13. | Roberts, J. E. McMahon 1 | Dry |
| 34-15-14. | Grayson, Okmulgee P. & R. 34 | Dry |
| 30-14-13. | Burton, R. G. Galloway 2 | Dry |
| 11-15-14. | Adams, Moore et al 7 | Dry |
| 4-14-14. | West, Okmulgee P. & R. 6 | Dry |
| 3-14-15. | McGilbray, Christian et al 1 | Gas |
| | Dry | 12 |
| | Gas | 1 |
| | Gas | 5 000,000 |

### WAGONER, MUSKOGEE, ROGERS.

| | | |
|---|---|---|
| 8-16-15. | Gibson, F. B. Dillard 2 | Dry |
| 31-15-15. | Mayson, Smith & Cline 1 | Dry |
| 17-15-16. | Caney River Gas 25 | Gas |
| 17-15-16, | Banks, Davis et al 4 | Dry |
| 15-16-15. | Drew, Scheer et al 3 | Dry |
| 20-15-16, | Woodell, Curd & White 1 | Dry |
| 22-15-16, | Farmer, Margay Oil 1 | Dry |
| 25-15-16. | Lannon, Rooser et al 1 | Dry |
| 14-13-15. | McNac, Simons et al 1 | Dry |
| 24-14-15. | Jefferson, Producers Oil & Gas 1 | Dry |
| 11-14-16, | Lee, Boland Oil & Gas 2 | Dry |
| 14-14-16, | Enbank, Appleman et al 6 | Dry |
| 20-14-15. | M. Carter, Beeler O. & G. 1 | Dry |

35-14-15, Wilson, Cooper et al 1 ..... Dry
10-13-15, Weaver, Worth Woody Oil 1 ..... Dry
6-13-16, Callahan, Lampton et al 2 ..... Dry
36-15-17, Jones, Lamton 1 ..... Dry

Dry ..... 16
Gas ..... 1
Gas ..... 500,000

GARFIELD, NOBLE.

15-23- 2, Mid Co. Pet. 3 (Gault) ..... Gas
30-22- 3, W., Crews, Sinclair O. & G. ..... Dry
9-22- 3, Harrington, Quadrangle Pet. 1 ..... Dry
25-24- 4, Windler, Sinclair O. & G. 1 ..... Gas

Dry ..... 2
Gas ..... 2
Gas production ..... 9,000,000

KAY COUNTY.

31-29- 1, Pratt, Empire Gas & Fuel 2 ..... Gas
31-29- 1, Tucker, Spencer O. & G. 1 ..... Gas
31-29- 1, Smith, Bermont Oil 4 ..... Gas

Gas ..... 3
Gas ..... 16,000,000

YALE, PAYNE COUNTY.

27-19- 5, Bingswend, Bingswinger Oil 1 ..... Dry

HEALDTON DISTRICT.

20- 4- 2, Vorhees, Blue Jay Oil 1 ..... Dry
29- 2- 3, Dougherty, Astral Oil & Gas 2 ..... Gas
33- 2- 3, Pearce, Gypsy Oil 1 ..... Gas
33- 2- 3, Pearce, Gypsy Oil 1 ..... Gas
29- 2- 3, Fagan-Johnson, Sinclair-Astral Oil 3 ..... Gas

Dry ..... 1
Gas ..... 4
Gas ..... 26,000,000

WILDCATS.

Creek County—
6-15- 7, Steele, Monitor Oil & Gas 2 ..... Gas
23-13-10, Withers, Curtis & Aiken 1 ..... Dry
20-17- 7, Perryman, Princess Helen Oil 1 ..... Dry
Murray County—
33- 2- 4, Moran, Maloney & Smith 1 ..... Dry
Haskell County—
6- 7-19, Burgevin, Escrow Oil 1 ..... Dry
Carter County—
16-5s-3w, Taylor, Watchorn et al 1 ..... Dry
Major County—
8-23n-8w, Perrul, Braden et al 1 ..... Dry
Alfalfa County—
27-29n-9w, McKee, Mendus et al 1 ..... Dry
Custer County—
32-13n-20w, Butler, Universal Oil 1 ..... Dry
20-12-16, Thompson, Cooper et al 1 ..... Dry
Pontotoc County—
30-14n-6e, Leader, American O. & R. 2 ..... Gas
McIntosh County—
2-9-n-17e, Prince, R. H. Searcey 1 ..... Dry
Caddo County—
11-11-11, Anne Howell, Bingman et al 1 ..... Dry
Okfuskee County—
29-13- 9, Johnson, Cosden O. & G. 1 ..... Dry
Logan County—
26-16n-3w, Pauge, Atlantic Petroleum 1 ..... Dry
32-19-3w, Newman, Mid-Con. Petroleum 1 ..... Dry
Pittsburg County—
1-7n-18e, King, Quenton et al 3 ..... Gas
18- 8-16, Smith, Shaffer et al 1 ..... Dry
Cotton County—
27-10-1w, Beetch, Keys et al 1 ..... Gas
Garfield County—
8-24n-8w, Schulz, Bucher et al 1 ..... Dry
Dewey County—
22-16-17, Topay, Okla. Southern Oil 1 ..... Dry
Woods County—
1-25-15w, Greeson, National O. F. 1 ..... Dry
Kay County—
16-26-3e, J. McConnell 1 ..... Dry
24-26-2e, J. Thede, Okla-Kan. Oil 1 ..... Dry
Tillman County—
8-4s-17w, Findlay, N. W. Elec. Oil & G. 1 ..... Dry
Pawnee County—
33-23- 3, Hamoratha, Fortuna Oil 1 ..... Gas
Atoka County—
4-1s-14e, James India Homa Oil 2 ..... Dry
Garfield County—
23-23n-3w, Weaver, Braden et al 1 ..... Dry

Dry ..... 23
Gas ..... 5
Gas ..... 3,500,000

## ARKANSAS.

Crawford County—
32-9-n-30w, Cox, Clear Creek Oil & Gas 1 ..... Dry

## KANSAS.

SUMMARY OF WELLS COMPLETED.

| | Comp. | Prod. | Dry. | Gas. |
|---|---|---|---|---|
| Montgomery | 23 | 227 | 11 | 3 |
| Chautauqua | 35 | 372 | 2 | 3 |
| Butler | 85 | 58,035 | 7 | 2 |
| Wilson | 29 | 290 | 4 | 0 |
| Neosho | 34 | 368 | 1 | 4 |
| Allen | 8 | 38 | 4 | 2 |
| Franklin | 33 | 311 | 4 | 2 |
| Miami | 58 | 549 | 19 | 9 |
| Wildcats | 6 | 10 | 5 | 0 |
| Total | 323 | 60,199 | 55 | 23 |

## OKLAHOMA.

SUMMARY OF COMPLETED WORK.

| | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Cherokee d. s. | 96 | 1,784 | 9 | 1 |
| Cherokee s. s. | 59 | 466 | 14 | 0 |
| Osage | 80 | 3,060 | 4 | 11 |
| Cleveland | 29 | 1,760 | 11 | 0 |
| Cushing-Shamrock | 13 | 1,020 | 2 | 2 |
| Creek | 254 | 10,731 | 70 | 22 |
| Kay | 17 | 3,935 | 4 | 4 |
| Healdton | 37 | 2,140 | 2 | 3 |
| Garfield-Noble | 13 | 1,020 | 2 | 2 |
| Wildcats | 47 | 99 | 35 | 4 |
| Total | 645 | 26,015 | 153 | 49 |

## MID-CONTINENT.

SUMMARY OF WELLS COMPLETED.

| | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Oklahoma | 645 | 26,015 | 153 | 49 |
| Kansas | 323 | 60,199 | 55 | 23 |
| Arkansas | 1 | 0 | 1 | 0 |
| Total | 969 | 86,214 | 209 | 72 |

## TEXAS PANHANDLE.

WICHITA AND WILBARGER COUNTIES.

Electra—
Ziset, Prince et al 3 ..... Dry
Nelson, Peoples Oil 2 ..... Dry
McCellon, A. J. Schultz 1 ..... Dry
Waggoner, Producers Oil 130 ..... Dry

**Toledo**

A readiness-to-serve charge of 35 cents per month has been established by the Northwestern Ohio Natural Gas Company.

**PENNSYLVANIA—Glenshaw**

The Glenshaw Natural Gas Company, since the first of November has raised its rate from 30 to 32 cents per thousand.

**Leechburg**

The Gilpin Natural Gas Company, which supplies gas in Allegheny, Armstrong, Butler, Indiana, and West Moreland Counties, is asking for permission to increase its rates for gas supplied in excess of 500,000 cubic feet per month from 23 to 25 cents per thousand.

The Equitable Gas Company, the Allegheny Heating Company, the Monongahela Natural Gas Co., and the Allegheny Illuminating Company have filed applications to increase their rates for industrial consumers. These companies operate in Allegheny, Armstrong, Greene, Washington and Westmoreland Counties.

**Pittsburgh**

The American Natural Gas Company, operating in Allegheny, Armstrong, Butler, Indiana and West Moreland Counties, has filed an application with the Public Service Commission for permission to increase its rate for gas in excess of 500,000 cubic feet per month, from 23 cents per thousand to 25 cents.

**Sheffield**

The Citizens Gas Company has increased its rate from 25 to 32 cents per thousand.

**Warren**

The Jefferson County Natural Gas Company, operating in Warren and Jefferson counties, is asking permission to increase its rates to industrial consumers from 23 cents per thousand to 26 cents.

**WEST VIRGINIA—Grafton**

Permission has been granted the Pittsburgh and West Virginia Gas Company to advance its rates in the territory served by it, except in Tyler County.

**Middlebourne**

The Middlebourne Gas Company is asking permission to increase its domestic rates from 20 cents to 30 cents per thousand, commercial rates from 19, 13 and 10 cents to 29, 21 and 17 cents per thousand.

**Salem**

Permission is asked of the Public Service Commission by the Raccoon Gas Company of this city to increase its domestic rates from 17 cents to 22 cents per thousand, its industrial rates from 4 cents, 5 cents on old contracts, and 15 cents and 10 cents on new contracts, to 13 cents for all gas used for industrial purposes. An increase from 12 cents to 17 cents per thousand is also asked for gas supplied to religious and educational institutions.

# INCORPORATED

**It will be noted that we here specifically point to natural gas companies that have been incorporated. Those desiring to learn of artificial gas companies that have received incorporation papers should refer to THE GAS INDUSTRY magazine, published at 60 Pearl Street, Buffalo, N. Y., which devotes its columns entirely to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being specifically issued for its respective field, thus each rendering 100% efficiency in the industry it covers.—Publisher's Note.**

**DELAWARE—Dover**

The Beacon Oil & Gas Products Company has been formed here with a capital stock of $1,000,000. Among those interested are C. M. Richa, C. R. Sickels, and A. M. C. Hudson, all of New York.

The New York & Arpansas Oil & Gas Company has been incorporated under the laws of this state with a capital of $1,000,000. Those named as incorporators are W. S. Randall, F. A. Armstrong, and C. M. Egner, Wilmington, Del.

**KANSAS—LeLoup**

The New York & Arkansas Oil & Gasc Company has ized with a capital stock of $10,000 to develop the Noss lease and others near this city.

**LOUISIANA—Monroe**

The Monroe Gas Company has been formed with a capital of $200,000, to take over the gas franchise secured here by Louis Lock. The company will lay a distributing system and pipe the gas from the nearby gas field. The officers of the new company are: President, Oscar Nelson; vice-president, George G. Weeks; secretary, Carl H. McHenry; treasurer, Travis Oliver, and trustee, F. F. Curtze.

**NEW YORK—Buffalo**

The Beese Oil & Gas Company has been organized here with a capital stock of $300,000. Those named as incorporators are: D. Fretz, N. H. Beese and J. H. McLean, of Buffalo.

**OKLAHOMA—Broken Arrow**

The Arrow Field Oil & Gas Company has been incorporated with a capital stock of $125,000. Those named as incorporators are: J. H. Fuose, Brookfield, Mo.; F. X. DeVoy, Brookfield, Mo.; S. L. Johnson, Broken Arrow.

**McAlester**

The Charles United Oil & Gas Company has been formed under the laws of the State of Delaware, with a capital stock of $1,000,000. The incorporators are: W. H. Arnold and W. E. Haile, of McAlester, Okla., and A. B. Davis, of Kansas City, Mo.

**Oklahoma City**

First Choice Oil & Gas Company has been formed here with a capital stock of $50,000; George M. Davis, A. D. Johnson, Roy E. Ramsey, Oklahoma City.

# GENERAL

It will be noted that the items appearing under this heading pertain more to natural gas matters than to natural gas in its relation to gasoline. The natural gas items along with a gas map are referred to THE GASOLINE industry magazine published at 8 Park Street, Buffalo, N. Y. which devotes its columns more to natural gas matters. That magazine is published by the publishers of THE NATURAL GAS AND GASOLINE and magazine being one which is issued for the purpose of serving both oil and gas in the industry. Publisher's Note

**ALABAMA—Birmingham**

A report is current that a gas well has been completed on the Chalybe property which has a good [illegible] make it commercially [illegible] feet

**ILLINOIS—Chicago**

Well drillers on the estate of [illegible] near Lake Forest [illegible] gas [illegible]

Experts were of the opinion that [illegible] feet per day and that [illegible]

**KANSAS—Garnett**

The Garnett Light & [illegible] has been reorganized [illegible] Directors [illegible] Kan. [illegible] of Wichita [illegible] A. [illegible]

**Wellsville**

The Wellsville [illegible]

**KENTUCKY Louisville**

[illegible]

**Paintsville**

[illegible]

**LOUISIANA—Gretna**

[illegible]

**Monroe**

[illegible]

ing the present month. The distributing system is practically completed.

The Southern Carbon Company has a two-million cubic foot well on No. 1 on the McLain property Section 22 by 14 at a depth of 2350 feet. This well is located in Ouachita Parish.

**NEW YORK Chittenango**

It is reported that a flow of gas has been struck in the test well being drilled by the Ohio Fuel Supply Company near Chittenango. The gas is met in paying quantities in sand and drilling has been temporarily stopped as the end of the cable has been reached with the well down about 2050 feet. The gas flow began at 2045 feet.

**Dunkirk**

The Seneca State Natural Gas Company recently completed a good well at Farnham.

**Elmira**

Water's supply [illegible] feet to assure [illegible] by the Elmira Water Company. The price will be [illegible] cents per thousand.

**New York City**

At the regular October meeting of the directors of [illegible] Service it was decided to increase the dividend [illegible] a year [illegible] and increase the stock dividend on the common to one per cent to [illegible] per cent. The new dividend will go into effect on February 1 [illegible] and will apply to stock [illegible] record January [illegible] on that date the monthly dividend will be three [illegible] per cent instead of one half of one [illegible] The [illegible] dividend program [illegible] the [illegible]

[illegible]

**Seneca Falls**

[illegible] Falls at [illegible]

**NORTH DAKOTA Williston**

[illegible]

**OHIO—Cleveland**

[illegible]

**Meigs County**

The Mason [illegible]

**Mount Vernon**

The Ohio Fuel Supply Company is reported to have 165 leases in Brown, Jefferson, Pike, Union and Butler counties.

**Richland**

The Ohio Fuel Supply Company has completed a well said to have a capacity of 2,500,000 cubic feet on the John Bethel property. The gas was found three feet in the sand.

The company's No. 1 well on the Clark land has been completed and is reported to be making 1,500,000 cubic feet.

**Washington County**

On the Ohio side in the Chester Hill district, Wesley township, the Bailey Oil Company drilled its test on the Esau Harris farm through the Macksburg 800-foot sand. It is a gasser with an estimated capacity of 2,500,000 cubic feet a day. The gas pressure in this well was encountered thirty-seven feet above other wells in that locality.

**Wayne County**

The Logan Natural Gas Company has secured 63 new leases in proven territory in this country.

**Wooster**

The Medina Gas & Fuel Company has drilled in a well producing about 3,000,000 cubic feet of gas per day, on the Shelley farm, seven miles southeast of Wooster on the Bachleyville Road.

A block of 160,000 acros south of Wooster has been leased by the Medina Gas & Fuel Company. A test well is being drilled in the middle of this 160,000 acre tract to determine the formation of the gas pools.

The East Ohio Gas Company has drilled in a paying gas well on the Blosser farm located southwest of the city.

**OKLAHOMA—Drumright**

The Drumright division of the Oklahoma Gas & Electric Company secured power contract with the Rollan gasoline plant for 150 horsepower to operate a compressor to manufacture gasoline from casing head gas received from the oil wells.

**Enid**

On October 26 the Enid, Okla., divisions of the Oklahoma Gas & Electric Company reached its maximum daily sales, to wit: 4,317,730 cubic feet of natural gas. It is anticipated, however, that the maximum daily output during the winter will be two million in excess of this figure.

The Oklahoma Gas & Electric Company states that the demand for gas connections in Enid has exceeded expectations, and that all of the available business will be secured before the winter is over.

**Henryetta**

The Kingwood Oil Company has a 7,000,000-foot gasser on the Hutton farm, in Section 18-12-14.

**Muskogee**

A good gasser has been completed and shut in recently by the Navy Oil & Gas Company on the Oscar Tiger farm, in section 30-13-17. The gas was found at a depth of 2,112 feet.

**Oklahoma City**

The new gas line to the Morrison field now under construction by the Oklahoma Gas & Electric Company, it is expected, will be completed very shortly.

**PENNSYLVANIA—Bradford County**

A number of oil and gas men of Philadelphia have leased 10,000 acres of land in the towns of Towanda, Wysox, Asylum, Standing Stone, Terry and Sheshequin in this county, and will begin shortly drilling for gas. Geologists report that there ought to be gas and oil in the vicinity. The drilling will be carried to a depth of 4,000 feet if necessary.

**Bradford**

The capacity of the Pennsylvania Gasoline Company's plant has been increased by 3,000 gallons per day.

The casing head gasoline plant of the United Natural Gas Company is rapidly nearing completion. It is located at Lewis Run, near this city, and cost in the neighborhood of $150,000 to construct. The plant is equipped to produce 75,000 gallons daily. The company draws its gas from Jefferson, Elk, McKean, Clarin and Forest Counties.

**Greene County**

In the Bristoria field, Richhill township, the Natural Gas Company of West Virginia has completed its test on the Samuel Smith farm. It is a small gasser in the Big Injun sand.

**Kane**

According to a recent report, liquid gas is being made from natural gas produced in this territory. The gas is being made under the compression system by a company which operates several casing head gasoline plants in this section of the state.

It is said that the gas will be used for the same purposes as Blau gas and Pintsch gas, for heating, lighting, cooking, welding, etc. The gas is distributed in steel bottles in somewhat the same way as carbonic acid gas is delivered to soda fountains. The gas is bottled at a pressure of 900 pounds and an expansion valve used to get the desired pressure, which will be in the neighborhood of one pound.

Tests show that there is about four pounds pressure to a gallon of the liquid. A further test showed that while the temperature outside the bottle was 40 degrees F, the temperature inside was 60 degrees F. below zero.

**McKean County**

According to records, the casing head gasoline industry has increased by 30 per cent in McKean County during the year 1917. Forty-five thousand gallons a day are being produced.

**Sykesville**

A light gasser has been drilled in here by the Sykesville Oil & Gas Company, being the second well completed by this company within the last few weeks.

**TEXAS—Corsicana**

The North Texas Gas Company is adding considerably to its distributing system.

**Dallas**

The new pipe line from the Oklahoma fields which has been under construction by the Lone Star Gas Company is rapidly nearing completion, and it is expected that the city will shortly be assured of a splendid supply of gas from the new source.

**Fort Worth**

The Lone Star Gas Company, it is reported, with the completion of its new line from the Oklahoma fields, will supply this city entirely with gas from the Petrolia field, while the Oklahoma gas will take care of the needs of Dallas.

**WEST VIRGINIA—Braxton County**

In Salt Lick district, the Hope Natural Gas Company developed a light gas pressure in the Gordon sand and at its test on the J. I. Bender farm. It will be given a shot.

**Charleston**

Of 291,252,435,000 cubic feet of gas produced in West Virginia during the year ending June 30, 1917, 210,321,226,000 cubic feet, or 71.4 per cent of the total production was exported from the state, leaving 28.6 per cent for West Virginia consumers, according to a report issued by the Public Service Commission.

The average number of wells in use per month during the year was 6,682, the report shows.

**Clay County**

On King Shoal Run, Union district, the United Fuel Gas Company's test on the Goshorn, Brown & Swan tract is a gasser in the Big Injun sand.

**Doddridge County**

On Fallen Timber Run, New Milton district, the Carnegie Natural Gas Company's test on the William Smith farm is a gasser in the Big Injun sand.

In Central district the Hope Natural Gas Company has drilled its No. 3 on the R. A. Smith farm through the Big Injun sand. It is a light gasser in that formation. The Philadelphia's test on the F. M. Sherwood farm is a light gasser in the Big Injun sand.

On Pike fork, McClellan district, the Hope Natural Gas Company's test on the August Coffman farm is a gasser in the Gordon.

On Broad Run, McClellan district, the Carnegie Natural Gas Company got a Big Injun gasser at No. 5 on the Marshall Ash farm.

On Nutters Fork, Grant district, the Carter Oil Company's No. 5 on the Joseph Carrothers farm is a very light gasser in the Big Injun sand.

On Nutters Fork, West Union district, the Carter Oil Company has completed No. 5 on the W. L. Campbell farm. It is a gasser in the Big Injun sand. Estimated capacity, 3,000,000 cubic feet a day. On the same stream and in the same district Trainor Bros. drilled their test on the John A. Smith farm through the same formation. The well has a capacity of 4,000,000 cubic feet a day.

**Elkins**

Leases covering 7,000 acres of land near Manowa have been taken by the West Virginia Central Gas Company. Test wells are to be drilled immediately.

**Harrison County**

On Limstone Creek, Coal district, the Hope Natural Gas Company's test on the Benjamin Wilson farm is a gasser in the Fifth sand.

**Jackson County**

On Elk Fork, Washington district, the United Fuel Gas Company has drilled a test on the Boyd E. Warne farm through the Big Injun sand. It is a fair gasser in that formation.

**Kanawha County**

On Hackberry Run, Big Sandy district, the O'Connell Oil Company has completed No. 56 on the Goshorn tract. It is a gasser with an estimated capacity of 5,000,000 cubic feet a day in the Big Injun sand.

The Kanawha Valley Products Company's Nos. 4 and 5 on the W. M. Bower farm are both gassers in the Weir sand. The Cabin Creek Gas Company got a 2,000,000-foot gasser at No. 11 on the David Ward heirs' tract. The Eastern Carbon Company's Nos. 4 and 5 on the W. M. Thompkins farm are both Weir sand gassers.

**Lewis County**

In Collins Settlement district, the Hope Natural Gas Company's test on the Eliza McGuire farm is a gasser in the Big Injun sand.

In the old Copley District, the Pittsburgh & West Virginia Gas Company has a well on the Thomas Gafney farm, which is making 70 barrels of oil in the fifty-foot sand, and also has a gas production of 2,000,000 cubic feet.

**Ritchie County**

On the Hughes River, Clay district, the Philadelphia Company's No. 5 on the T. J. Broadwater farm is a gasser in the Big Injun sand. On Beeson run, in the same district, the same company's second test on the William Meanor farm is a Big Injun sand gasser. On the same stream and in the same district, the Carnegie Natural Gas Company has a fair gasser in the Maxon sand at its test on the G. Dodd farm.

On Indian Creek, Murphy district, the Cairo Oil Company's No. 4 on the B. F. Prince farm is a fair gasser in the Gas sand.

**Roane County**

On Left Fork, Walton district, the Dotty Oil and Gas Company's test on the H. C. Dalrymple farm is a gasser in the Big Injun sand.

**Taylor County**

On Lost Creek, Booths Creek district, the West Virginia and Pittsburg Gas Company drilled a test on the Lora B. Knight farm through the Fifth sand and secured a fair gasser in that formation. This is the first well in that locality to get gas in the lower sand.

**Tyler County**

In Ellsworth district, located on Elk Fork, the Hope Natural Gas Company's test on the R. D. and J. S. Roberts farm is a gasser in the Big Injun sand.

**Wheeling**

The Manufacturers Light & Heat Company has notified local manufacturers that it will be able to furnish gas only for heat after the first of the year, due to the diminishing supply. Natural gas has been used for industrial uses for more than twenty-five years in this section.

What is said to be the largest known natural gas well in the State of West Virginia has been brought in by the United Fuel Company, a subsidiary of the Columbia Gas & Electric Company, and is flowing 25,000,000 cubic feet daily.

The well was brought in above the oil bearing sands and has a rock pressure of 450 pounds to the square inch.

The location of the well is at about the center of a tract of 13,000 acres.

With this latest well the company has added to its natural gas supply about 236,000,000 cubic feet daily since the beginning of 1917.

**Wetzel County**

One mile east of Pine Grove, Grant district, the Carnegie Natural Gas Company has completed a test on the B. L. Morgan farm. It is a fair gasser in the Gordon sand.

On Long Drain run, Church district, the Philadelphia Company got a Maxon sand gasser at its test on the J. N. Flanagan farm.

**WYOMING—Casper**

The Midwest Refining Company, it is said, will build two additional casing head gasoline plants in the Grass Creek and Elk Basin fields.

**ALBERTA—Edmonton**

In the Viking field, the Northern Natural Gas & Development Company has completed its No. 7 well, and reports a production of 5,000,000 cubic feet.

**NEW BRUNSWICK—Moncton**

The Brunswick Gas & Oilfields, Lt., are reported to have brought in a good gas well on one of their leases in this territory.

**ONTARIO—Elgin County**

The Richmond Gas & Oil Company of Chatham, completed a 1,000,000 cubic foot well in its No. 5 well.

**Fort Erie**

The Provincial Gas Company is remodelling the engines at its pumping station to run with gasoline as fuel, due to the shortage of natural gas,

**Shetland**

It is reported that a natural gas distributing system will be installed here by the Shetland Gas Company.

**ITALY—Pisa**

Natural gas has been discovered on the property of a factory owner near Pisa according to report.

---

**NOTICE.**

By request of the postal department we publish the following increase in postage rates that went into effect November 2, 1917:

Letters (except drop letters), 3 cents an ounce.

Drop letters (those for delivery through office or mailing), 2 cents an ounce.

Postal cards, 2 cents each.

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—Gas & Electric News.


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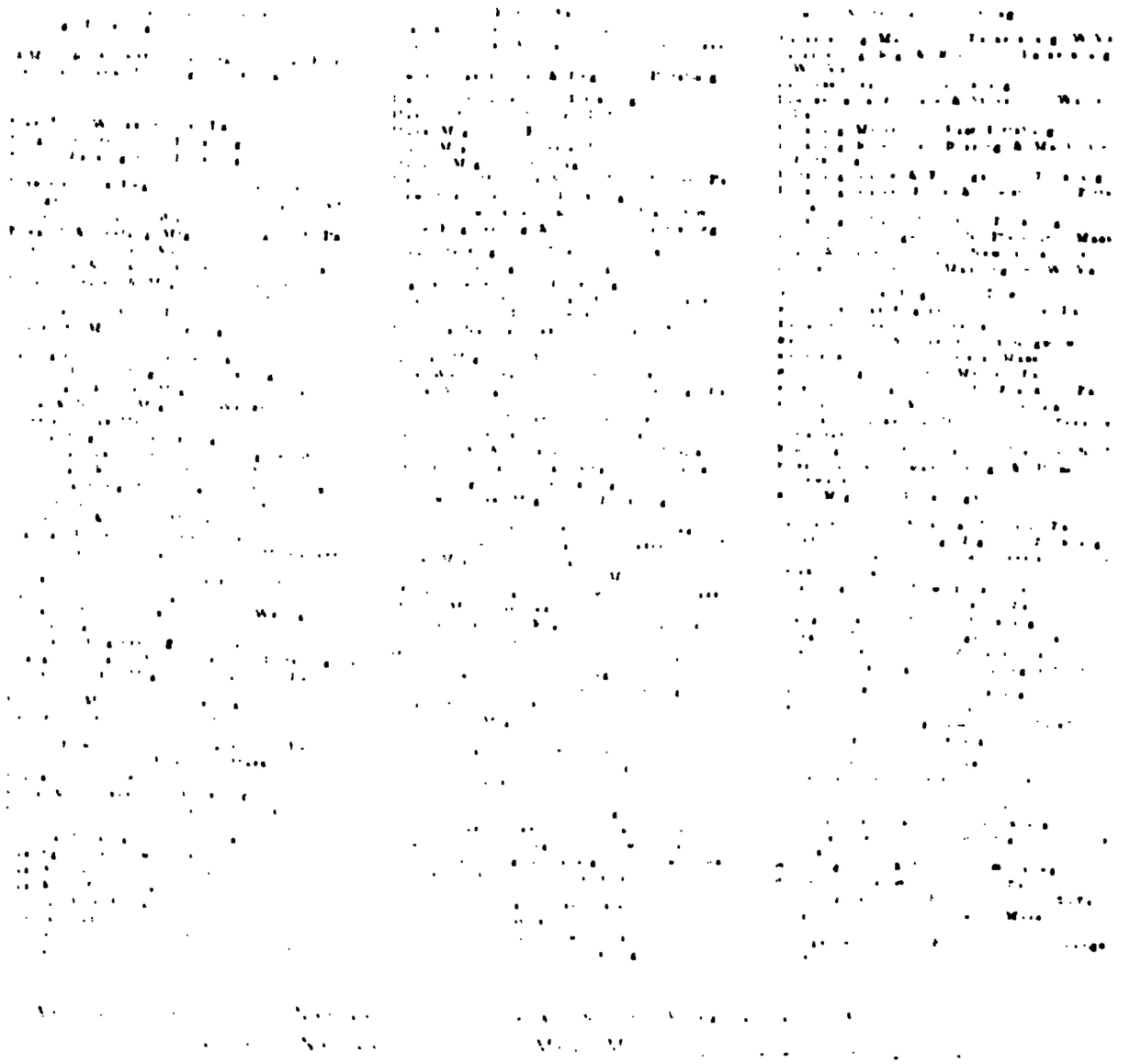

OFFICE OF THE

# NATURAL GAS ASSOCIATION OF AMERICA

904-05 OLIVER BUILDING

DAVID O. HOLBROOK,
Vice-President

Pittsburgh, Pa., December Third,
Nineteen Seventeen

NATURAL GAS & GASOLINE JOURNAL,
60 Pearl Street,
Buffalo, New York.

Gentlemen:-

At a meeting of the Board of Directors of The Natural Gas Association of America, held in Pittsburgh on Saturday, December 1st, a letter was read from C. C. Ousley of the Louisville Convention & Publicity League, under date of September 26th, advising that there must be a change made in the plans for the Convention, which was scheduled to meet in Louisville in May of 1918. The Government has commandeered the building in which the convention was to be held, and is to use it as a sewing depot for the period of the war.

After a thorough discussion by the Board of Directors, it was decided that on account of the necessity for economy and the railroad congestion, it would be advisable to hold the next convention without the customary auxiliary convention of the Association of Natural Gas Supply Men, devoting the entire time of the meeting to the discussions of the problems of the natural gas industry.

Each year the members of the Supply Men's Association spend approximately $75,000.00 in the expenses of their representatives and the installing of their exhibits. It was thought by the Directors of The Natural Gas Association of America that this expenditure was not justified under the present conditions; and a motion was passed, recommending to the Directors of the Association of Natural Gas Supply Men the elimination of the exhibit feature this year.

The Convention of the Natural Gas Association will be held as usual, although the session will be only two days instead of three. Because of the probabilities of securing larger attendance at Pittsburgh than at any other point, it was decided to hold the convention in Pittsburgh on May 21 and 22, 1918.

Yours very truly,

*David O. Holbrook,*

DOH:AWN.

Vice President

# FROM THE EDITORIAL MAIL BAG

## HOLBROOK HELPS PRIORITY

THE versatility of David O. Holbrook is well indicated by virtue of the fact that he is Vice-President of the Natural Gas Association of America, President of the Manufacturers' Section of that Association, and has now been appointed to assist the administration in directing the affairs of the nation's industries through a connecton with the Priority Committee of the War Industries Board.

Mr. Holbrook will have his offices in the building with the Council of National Defense. It is planned that he will spend three days a week in Washington, and that his work will consist of procuring for the munition factories a preferential service through the gas companies over other industries.

The selection of Mr. Holbrook places the natural gas administration in the hands of a man who is peculiarly well qualified to handle the situation. He came to Pittsburgh in 1893 from the University of Iowa and took a position in a Uniontown coke plant. He soon was transferred to the superintendent's office of the Hainsworth steel plant of the Oliver & Snyder Company. He rose to the position of purchasing agent with the company and, when its plants and furnaces were sold to the United States Steel Corporation in 1899, he went with the Pennsylvania Malleable Company and the Central Car Wheel Company as secretary. In 1906 he left this company to organize the Dayton Pipe Coupling Company and the Dayton Pneumatic Tool Company. Since that time he has been manufacturer and contractor of supplies for natural gas pipe lines, and has a thorough knowledge of the capacity of practically all of the gas companies of the country.

Mr. Holbrook is a member of the Chamber of Commerce of Pittsburgh and a past president of the Pittsburgh Press Club, and recently spoke at the luncheon at the Fort Pitt Hotel in Pittsburgh when the local fuel situation was discussed by D. W. Kuhn, administrator for the Pittsburgh district.

DAVID O. HOLBROOK

## GASOLINE LOCOMOTIVES FOR OVERSEAS

THE United States Government is contracting for a large number of gasoline engines to be used for trench work abroad. Gasoline locomotives are among the new forms of equipment to be put in service.

## GAS OUTPUT GREATER.

IT IS stated that in the year 1916 the natural gas output commercially-utilized in the United States, was greater than that thus used in any other year in the history of the enterprise of natural gas production in this country.

The volume used, which amounted to 753,170,253,000 cubic feet, constitutes a new record exceeding by nearly 125,000,000,000 cubic feet, or 20 per cent the former record established in 1915.

The average price of this gas at the point of consumption was 15.96 cents a thousand cubic feet and its total market value was $120,227,468, a loss of 0.16 cent in unit price, but a gain of $18,915,087 or 18.6 per cent in total value compared with 1915.

Credit for increased production of natural gas in 1916 belongs in the order given, to West Virginia, Oklahoma, Pennsylvania, California, Louisiana, Kansas, Texas and Arkansas, which together produced 132,000,000,000 cubic feet more gas in 1916 than in 1915.

The report of production indicates that in but two states was there a significant decrease in the volume of natural gas produced.

Locally there were increases in Illinois, New York, and Montana. These increases, however, had little to do with the vast general increase of production of the United States.

In the Cuyahoga County field (Ohio), the exhaustion resulted in a loss of some 9,600,000,000 cubic feet in the total volume produced in Ohio, while in Indiana a steady decline in the oil fields resulted in a falling off of 600,000,000 cubic feet of gas produced in that state.

The principal beneficiaries of the increased production of natural gas were, in the order named, Oklahoma, Pennsylvania, Ohio, Kansas, West Virginia, California and Louisiana, which together consumed some 100,000,000 cubic feet more gas in 1916 than in 1915.

The report indicates that the great increase in the United States in 1916 may be principally looked upon as due to the enormous expansion of the casinghead gasoline industry in all natural gas-producing states and to a greatly augmented demand for natural gas fuel by industries engaged in the manufacture of munitions of war. The influence of this demand is shown in the increase in the volume of gas distributed to industrial consumers and in the increase in the value of gas consumed, its effect being sufficient to lower the average price per thousand cubic feet of all gas sold in 1916 1 per cent as compared with 1915.

It is estimated that in 1916, of the total volume of natural gas produced and consumed, 31 per cent, or, in other words, 235,380,764,000 cubic feet, were distributed to 2,362,494 domestic consumers at an average price of 28.63 cents a thousand cubic feet and that the remaining 69 per cent, or 517,789,489,000 cubic feet, was distributed to 18,278 industrial consumers at an average price of 10.21 cents a thousand. Compared with 1915, these data show gain of 8 per cent in volume, of 8 per cent in number of consumers and of 1 per cent in average unit price of gas supplied for domestic use and a gain of 26 per cent in volume and of 5.5 per cent in average unit price, but a decrease of 0.4 per cent in the number of consumers of gas supplied for industrial use.

Industrial consumers in 1916 used 4 per cent more natural gas than in 1915. There has certainly been great growth in this using of gas for strictly industrial purposes. What we must now look out for, is to see that gas thus used is employed in scientifically-designed gas-burning appliances, such as shall produce a maximum of desired results with a minimum consumption of gas. In other words, the wasteful, drilled-pipe burner, should be relegated to the scrap-heap, and nothing allowed other than burners designed along the lines of conservation, coupled with efficient service.

The record by states is as follows:

| State. | Quality (M Cubic Ft.) | Price (Ctc. Per M Cubic Ft.) | Value. |
|---|---|---|---|
| West Virginia | 299,318,907 | 15.90 | $47,603,396 |
| Pennsylvania | 129,925,150 | 18.74 | 24,344,324 |
| Oklahoma | 123,517,358 | 9.70 | 11,983,774 |
| Ohio | 69,288,070 | 22.32 | 15,601,144 |
| Louisiana | 32,080,975 | 8.29 | 2,660,445 |
| Kansas | 31,710,438 | 15.31 | 4,855,389 |
| California | 31,643,266 | 17.19 | 5,440,277 |
| Texas | 15,809,579 | 19.89 | 3,143,871 |
| New York | 8,594,187 | 29.37 | 2,524,115 |
| Illinois | 3,533,701 | 11.22 | 396,357 |
| Arkansas | 2,387,935 | 10.13 | 241,896 |
| Kentucky | 2,106,542 | 35.73 | 752,635 |
| Indiana | 1,715,499 | 29.34 | 503,373 |
| Wyoming and Colo. | 575,044 | 14.97 | 86,077 |
| Montana | 213,315 | 18.21 | 38,255 |
| S. D., Ala., N. D. | 77,478 | 40.75 | 31,503 |
| Missouri | 69,236 | 25.41 | 17,594 |
| Tennessee | 2,000 | 57.50 | 1,150 |
| Michigan | 1,298 | 73.04 | 948 |
| Iowa | 275 | 100.00 | 272 |
| Totals | 753,170,253 | 15.96 | $120,227,468 |

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# Co-operation

*Composite Paper on Co-operation Between Buyer and Seller of Natural Gas Supplies —Prepared by the Board of Directors of the Association of Natural Gas Supply Men, and Read by Larmour Adams, Secretary.*

duty required of the articles which they are purchasing?

Too many purchasing agents of gas companies are so hampered with details and with the many perplexities of securing deliveries that they are unable to devote the attention necessary to proper consideration of the use to which the articles purchased will be put. This is not the fault of the buyer, because every purchasing agent is ambitious to buy articles which will give satisfaction, but in many instances the necessity for attention to small details is such that they are kept constantly busy and cannot go into the important matters with the thoroughness and carefulness that they deserve. If the executives would insist that the purchasing agent so arrange his work that he could visit the warehouse and fields at stated intervals, it would, we feel, work out to the advantage of both the buyer and the seller, and have a tendency towards that co-operation which will lead to the consideration of quality as well as price in the purchasing of supplies.

Every manufacturer has in his employ men who know thoroughly the articles which he is selling. The manufacturer's very existence depends upon his ability to secure repeat orders. This salesman is in touch with factory conditions, and oftentimes better qualified than the ordinary buyer to know what is best suited for the buyer's requirements. He will recommend an article which he knows will give satisfaction and be met with the remark, "No, your price is too high." The buyer does not know why the price is too high and probably does not know why the article suggested costs more than the one offered at a lower price. This condition ought not to prevail to the extent which it now does.

Quality with a reasonable price is a combination most to be sought for, and the buyer who looks for price first, and makes quality the second consideration is not rendering full and proper service to the company from which he is drawing his salary. If an analysis of cost be made which will show the expense of replacement, it would very soon educate many of the buyers whose sole thought apparently is first cost.

The Natural Gas Companies are selling service, and the more and oftener they call the attention of their customers to this fact, the sooner they will be able to obtain a reasonable price for their commodity. The manufacturer of supplies is also selling a service, and in direct proportion to his ability and willingness to furnish this service, he is entitled to recompense.

It is not always the largest manufacturer who can best serve the interest of the customer. The small manufacturer should not be handicapped because of his lack of size, but should be encouraged in every possible way, if his device is one of merit. He should not be discouraged by being made to sell his product at a price lower than that of the article now in use, if in the judgment of capable men, he has a device worthy of consideration. Too often the manufacturer is to blame for the price cutting evil, and this is especially true of the small struggling manufacturer who must make sales in order to meet payroll expenses, and who, with a device of merit is forced to sell it at factory cost, and then in order to meet his overhead expenses cheapen his quality in order to continue in business. The small manufacturer should be encouraged even to the extent of being paid a somewhat higher price, if the device is one of merit, for it is often only by the encouragement of manufacturers of this class that devices are developed, which ultimately result in great saving to the gas companies. If the manufacturer has spent long hours in thought and much money in developing an article which is superior to any other on the market, he is entitled to a legitimate return and fair profit in the price of the article developed. In no other way can advancement be made. Co-operation between maker and user will work to the ultimate advantage of both. If the user will explain exactly the services required of the article desired, the manufacturer can oftentimes, with a full knowledge of conditions under which the article is to be used, develop devices which will work for economy in operation. In this development work he will of necessity go to an expense on which he is entitled to a fair return. As the demand for this article increases, the price will, within certain limits, decrease, but unless the manufacturer can obtain a fair legitimate profit, it is not human to expect him to spend his time and his money to attempt to bring out improved devices.

Supplies should be purchased on the same basis as other important features which enter into the success of a gas company. No executive officer of a corporation could hold his position if he would choose his assistants on the basis of price alone, and yet many good superintendents have had their efficiency lowered and their lives shortened because they are furnished with inefficient and short lived supplies. A good workman requires good tools. A field man wants and must have good materials and if he is constantly furnished with cheap junk, he will soon lose interest in his work, and blame all his trouble, whether properly or not, on the fact that he cannot keep up his lines because he is not being furnished with proper materials.

While we supply men are seeking co-operation with buyers of our material, we feel that many times there should be greater co-operation in the different departments of the gas companies. Too often the manufacturer of a high grade and high priced article, who has constantly lost business in the office of the gas company, is discouraged when he asks for permission to visit the man who is actually using the article which he has for sale. This may be a necessary rule, but oftentimes the buyer is not fully informed as to existing conditions, and it would undoubtedly accrue to the benefit of the gas companies if the salesmen who are specialists in their line were given an opportunity to take up the question of the purchase with the actual user of his device.

While we as manufacturers suggest for your consideration the granting of permission in some cases to our representatives to call upon the actual users of our materials, there is another phase of this subject which is even more important along the lines of co-operation, and that is, having the men actually using the article visit the plant in which these articles are made. If the gas companies are encountering trouble along any line, the

## BUFFALO AS A PUBLISHING CENTER.

THE following item appeared in one of the daily papers in a city west of New York City. Nothing, it strikes us, could point more directly to the City of Buffalo as the logical point for magazine-publishing than what is said of the situation in this item. If a magazine-publisher should, however, move too far west, he would be out of the zone of vast circulation.

**Magazines, Move to Central City.**

"Zone postage, soon to be applied, is spreading terror and affliction among the New York magazines, not to mention those published in Boston and Philadelphia, and the question arises: Why not move? We wish they would—editors, contributors, illustrators, printers, and all. It would pay them. Several excellent periodicals now threatened with disaster might save their necks. The rest would thrive better by transplanting themselves to some fairly central location. In point of readability, influence, and general usefulness they would gain by a change of air.

The majority suffer from provincialism. To their editors the world is bounded on the north by University heights, on the south by the Goddess of Liberty, on the east by Blackwell's island, on the west by the Palisades—which would be funny were it not so tiresome and so worse than tiresome. In a sense, Paris is France, and, in a sense, London is England, but only New Yorkers will assert that Manhattan is America. With all its charm and its claims to a deserved eminence, New York City has a flavor of its own, a spirit of its own, a viewpoint of its own. There are times when it fails to represent America. It is too far from the center. If zone postage should bring New York's magazines to a more American part of America for the duration of the war we should all rejoice. Then, if they saw fit to return whence they came, they would return greatly benefited."

Buffalo is directly in the center of a population of over 50,000,000 in the United States and adjacent to the Dominion of Canada. Therefore mailings from the City of Buffalo will guarantee speedy deliveries north, south, east, and west at minimum pound rates. Furthermore, Buffalo is not disturbed by labor troubles as is many a sister city. The printers of Buffalo and the printer-artisans of Buffalo have for a long period been educated to the standard of style in composition and unsurpassed press-work.

Our magazines have today a great patronage in that they are published about midway between the big centers of Boston—New York—Philadelphia and the western metropolis, Chicago. We are from Buffalo, immediately in touch with the doings of that vast community which forms the greatest populated section of the United States, namely, the section east of Wisconsin, Iowa, Illinois, and Missouri.

THE NATURAL GAS AND GASOLENE JOURNAL while published in the natural gas section of Western New York, and for especially excellent reasons immediately adjacent to the great Pennsylvania region finds the vast number of its readers in West Virginia, Ohio, Canada, Louisiana, and in the western gas and gasoline-producing states of Oklahoma, Kansas, Texas, and California.

The publishers of this magazine would welcome to Buffalo the publishers of other magazines who would seek a central city from which to issue their journals. We will be glad to answer questions regarding Buffalo asked by those who may wish to better their facilities, add to the convenience of printing, and lessen the cost imposed by the pound zone-rate of mailing, issuing their publications from a central-city.

In including that which we have reprinted from a daily newspaper, the editor of that paper grants that his city is not as well located for permanent publishing as cities east. This, however, we do not grant when mentioning Buffalo, which is but a few hours from all of the other great cities—Boston, New York, Philadelphia, Baltimore, Pittsburgh, Indianapolis St. Louis, Chicago, Toronto, Montreal, and the larger cities within that circle of which Buffalo is the pivot.

## OIL EXCHANGE ORGANIZED.

THE rapid growth of the oil business around Kansas City has prompted the formation of an oil exchange.

The exchange in its articles of incorporation sets out among its purposes that it intends to gather and furnish valuable information to its members and to the public concerning the subject of petroleum oil and its by-products; to form and maintain a library touching upon subjects dealing with petroleum oil and its by-products; to obtain information concerning oil and gas securities and to establish a trading floor.

It is said that preparations are being made to thoroughly investigate all securities listed upon the exchange. It is also proposed to discourage and rid the market of fraudulent promotions.

The officers of the organization consist of M. M. Sweetman, president; Howard J. Vrooman, vice-president; Roy S. Ritchey, secretary, with Thomas M. Finn, as members of the board of directors.

# *Instructing Welders*

***In Order to Instruct Welders in an Art that is Finding World-wide Application, an Institution Has Been Established.***

His time will then be devoted to other things and the preparatory work which will not help him in the development of the art will be carried on by others. In this way the time spent in the actual use of the torch will bear as great a percentage as possible to the time allowed for his instruction. The remainder of his time will be taken up with tests and lectures. Each step he takes will be carefully analyzed for him and the results demonstrated by suitable tests, including the pulling of samples of his own work in a 100,000-pound Riehe testing machine.

In this way he will not only have a thorough knowledge of how to carry out the work, but will have his muscles under control so that he can operate in the best possible manner. He will also have a thorough understanding of the reliance that can be placed in his work, which is a factor of extreme importance.

To give the most efficient instruction there must not only be ample room and full equipment, but the highest class of instructors must be employed. Large quantities of metals, and liberal supplies of gases must be provided, all of which must be taken into consideration in estimating the cost of giving such instruction.

It is far more economical to employ this method of teaching than to put a cheap man into the shop where he will consume much of the time of a high-priced employee in learning, and spoil much of his work over a long period, resulting, after all, in producing a very ordinary operator, with little basic knowledge of the art. While men who are already considered expert welders foremen, superintendents, or exceptionally fine mechanics, can learn much that will benefit them in a week, it is necessary for a beginner to take a course of two weeks or a month.

To conduct an institute for the instructing of welders and the informing of foremen of how welding should be done, means the employing as instructors of those who have had practical as well as technical experience. Since the practical man is the man connected with the every-day use of welding equipment for all sorts of purposes, an institute, such as indicated, could not be better located than where thoroughly practical men are found, namely, under the same roof as houses an institution that has grown up in the industry from its very inception, and is under the management of thoroughly experienced and practical men. Such an institute is that known as the Davis-Bournonville welding institution of Jersey City, N. J.

## NEW PUBLICATIONS OF THE WEST VIRGINIA GEOLOGICAL SURVEY.

The West Virginia Geological Survey has recently issued three very important publications described below. The geologic map has also been issued, and the Railroad Map, and Report and Maps of Clay and Braxton Counties will make their appearance also very shortly. The Coal, Oil, Gas, Limestone and Iron Ore Map can be delivered now, as well as the other two publications.

(28) **New Edition of Coal, Oil, Gas, Limestone and Iron Ore Map,** thoroughly revised, showing oil and gas pools, many anticlinal lines not heretofore shown, and also the names and post-office addresses of all the principal coal mining operators in West Virginia up to July 1st, 1917. Map issued under date of October 1st, 1917; scale, 8 miles to the inch. Price, folded in strong envelope and delivered by mail, 50 cents.

(29) **New Railroad Map of West Virginia,** on a scale of 8 miles to the inch, showing by numbers all the steam railways of the State up to July 1st, 1917, with their mileage and valuation for taxation. Price, folded in strong envelope and delivered by mail, 50 cents.

(27) **Detailed Report on Clay and Braxton Counties,** by Ray V. Hennen, with notes on Conemaugh fossils by Dr. Wm. Armstrong Price, and Prof. E. C. Case of Michigan University, issued under date of October 1st, 1917, containing about 900 pages + XX pages of introductory matter, illustrated with 29 half-tone plates and 16 figures in the text, and accompanied by a case of topographic and geologic maps, the area of each county being published on separate sheets. This is the largest volume yet prepared by the Survey, and is replete with valuable information on the coal, oil, gas and other minerals of these counties, and the geologic maps give the anticlinals and synclinals in accurate detail. Price, including case of maps, delivery charges included, $2.50; extra copies of the geologic maps, 75 cents each, and of topographic maps, 50 cents each. West Virginia Geological Survey, P. O. Bor 848, Morgantown, W. Va.

## THINKING.

If you think you are beaten, you are;
If you think you dare not, you don't;
If you'd like to win, but think you can't,
It's almost a cinch you won't.

If you think you'll lose, you're lost,
For out of the world we find
Success begins with a fellow's will;
It's all in the state of mind.

If you think you're outclassed, you are;
You've got to think high to rise,
You've got to be sure of yourself before
You ever can win a prize.

Life's battles don't always go
To the stronger or faster man;
But soon or late the man who wins
Is the one who thinks he can.

—Safety Bulletin.

# Welding Gas Mains

***Subject of Oxwelding in Gas Main Construction Concisely Handled for the Benefit of the Gas Industry.***

M. S. CLARKE

In [illegible] process of oxy-acetylene welding [illegible] unique advantages [illegible] gas industry. The small oxy-acetylene flame, which has a temperature [illegible] degrees, the metal to be welded [illegible] is heated to the fusing point, where a [illegible] material in the form of wire is fused [illegible] the molten metal forms a [illegible] weld. By this simple method pipe is joined together, and the addition of fittings, wire, the joint is given the required strength.

[illegible] extensive work in America, especially in the [illegible] Pennsylvania, Oklahoma and California, and the widespread practice abroad have thoroughly demonstrated the [illegible] and reliability of the process, and welding [illegible] a welded joint eliminates [illegible] leakage and reduces maintenance cost. The [illegible] is limited only by the length of the [illegible] pipe.

[illegible] the United States in hermetically sealed drums [illegible] tainers, one hundred pounds each.

Such a drum will [illegible] with one acetylene [illegible] cubic feet of welding [illegible] steel pipe work. The use [illegible] the process has become [illegible] widespread at every [illegible] all over the United States and is employed [illegible] engineers in calculating [illegible] involved [illegible] cost. The three cylinders [illegible] carried on the truck [illegible] oxygen to operate [illegible] of welding [illegible] The [illegible] lengths [illegible] leading to the [illegible] and to the oxygen [illegible] enable a man [illegible] welders to work from a single unit. The cost of such a unit equipped to furnish the gas supply to [illegible] operate [illegible] is [illegible] low where the extent [illegible] welding is not [illegible] justify a company in making [illegible] large an investment [illegible] apparatus, as [illegible] welders is designed [illegible] gas [illegible] and [illegible] the [illegible] gas [illegible] [illegible] the [illegible] [illegible] [illegible]

with bevelled ends, a "V" groove is formed at the joints, enabling the operator to more easily penetrate the entire thickness of the wall, and at the same time facilitate a complete and proper fusion of both sections, with the filling wire which he adds. In cases where the ends of the pipe are square cut, the sections are butted up to within $\frac{1}{16}$ to $\frac{1}{4}$ inch of each other, depending upon the size of the pipe and thickness of the wall. Sections up to 1,000 feet or more in length are welded together on the surface of the ground, and when completed dropped into the trench. It is obviously desirable to dig as long a ditch as consistent, in order that long sections of pipe may be dropped in and the number of joints to be welded in the ditch reduced to a minimum. At such joints a ball is dug sufficiently large to enable the operator to make the weld in the trench by welding all the way around the pipe. The grading of the ditch must be observed as carefully as in the case of dresser couplings or thread connections to avoid low spots, but no particular care need be taken to have the pipe straight in the ditch; in fact, the more snakelike the pipe is laid, the better, for in this way expansion and contraction are taken care of. Experience has demonstrated that because of the great strength and flexibility of the oxyacetylene weld, no other provisions to take care of expansion and contraction are necessary.

The best and most economical way of laying down the pipe preparatory to welding is on 2x4s or other timber at the side of the ditch. The pipe should be placed ends butting for the welder, who is assisted by two helpers, working at each end of the section, who turn the pipe with chamtongs or other devices, so that the operator is always welding at the top of the pipe, a position in which the fastest work can be accomplished. While many follow the method above described for all sizes of pipe, some engineers weld the larger sizes, 8, 10, 12, 16 and 20-inch pipe when supported from skids directly above the ditch. In this way, two operators can work on opposite sides of the pipe, which is turned by the helpers as rapidly as the work progresses. As fast as the welded section of pipe is finished, it is capped at both ends and tested for leaks at the desired pressure. After it has been tested, it is lowered into the ditch and welded to the main already laid. At such points in the ditch, a bell hole is dug of sufficient size to allow the operator to weld entirely around the joint, as described above.

Aside from the enormous strength and efficiency of the welded joint compared with the mechanical forms of couplings, the new process is considerably more economical in installation cost. It has been demonstrated that welded joints can be made at a cost of from 25 to 60% less than the cost of purchasing connecting recessed screw couplings, while the economy is considerably greater in comparison with insulated couplings. On a line laid in a very rough and mountainous country, the following cost per joint based on labor at 35 cents per hour, may be considered as a fair average for welded joints:

| | | |
|---|---|---|
| 4"—$ .24 | 6"—$ .39 | 8"—$ .58 |
| 12"— 1.57 | 16"— 2.84 | |

It has been found that an average welder can complete from ten to thirteen joints per hour in two-inch pipe, 3½ to 4½ joints in 4" pipe, three joints in 6" pipe. The welding of a joint on 8" pipe takes from 30 to 40 minutes, on 12" pipe one hour, and in the case of 16" pipe one hour and one-half. Where laterals are required, a hole of the proper size is cut in the main with a cutting blowpipe and the lateral is welded into place at any angle desired. In the manufacture and installation of special fittings, the welding process is in a class by itself.

The number of bends in a welded main is less than in the case of screw or dresser couplings, inasmuch as the pipe can be cut at any point and welded at any desired angle. Where a bend is necessary, the usual methods can be employed. A long radius bend can be safely made in any section of pipe after it has been welded without any injury whatever to the welded joints. Laterals or service lines can be cut into the main by welding a short nipple thereto. The main can then be tapped through the valve installed on the end of the nipple, or a welded tee can be inserted in the main. The upright arm of the tee is threaded, and after tapping is closed with a cap. A bag hole may be welded up in the main by supporting a four-foot piece of six or eight inch pipe a few inches over the hole, so that the flame is carried away from the operator. The welded line in the city is a preventative of damage, due to electrolysis. It has been found by test that the action is distributed over the entire length of the welded main rather than concentrated at any one point.

In the making of fittings, tees, crosses, drips etc., the process is invaluable to the distribution engineer for, with the cutting and welding blowpipe, it is a simple matter using odd lengths of pipe to cut and construct in the field fittings of any type desired, thereby doing away with the preliminary surveys and avoiding the delays incident to the securing of special fittings. Practically no pipe is lost, because all the off lengths of the pipe which, under former construction methods would have been discarded, can be utilized for making various fittings at from 25 to 50% of the cost of manufactures of special cast fittings.

I have called to your attention only a few applications of this new process, which is so rapidly becoming recognized by distribution engineers. When we stop to consider that the introduction of the process has come within the last decade, its practicability cannot be denied. With the increasing number of competent welders and the facilities which are now offered by the larger manufacturers for the acquisition of the art by its employes, the lack of competent operators which has done more to retard its development than anything else is being rapidly overcome. Few, if any, industries have seen as enormous developments as the oxy-acetylene process, not only in its application to the work in which you are especially interested, but in the manufacture and fabrication of practically all metal products, in steel mills and foundries, in structural iron work, ship building, in railroads and repair shops, in fact there is scarcely anything used in this day in which oxy-acetylene has not played some part directly or indirectly.

—1917 Convention Texas Gas Association.

# Developing Management Policies

***The Standard Oil Company Lays Plans for Vast Development — Policies of Management to Receive Special Consideration.***

A YEAR ago Mr. [illegible] Bedford succeeded the late John D. Archbold as president of the Standard Oil Company, New Jersey. He has been elected chairman of the board and [illegible] operations. In his place as president Mr. Bedford has chosen Walter Clark Teagle. Mr. Bedford will [illegible] greater opportunity to devote himself to the [illegible] of management, while Mr. Teagle will [illegible] to the details of operation.

WALTER C. TEAGLE

[illegible] new department which is to [illegible] laws of the company was taken [illegible] Mr. Bedford and is a development [illegible] management which he has been [illegible]. It was [illegible] by the tremendous [illegible] operation detail and by the necessity [illegible] American business [illegible] constitutions [illegible] the Standard [illegible] and [illegible] new business policies. [illegible] United States Steel [illegible] with Judge Gary as chairman and chief executive officer and with Mr. [illegible] as the operating head is another example [illegible]

Mr. Bedford feels that the change will bring still greater efficiency to the Standard Oil Company and will mark a still greater growth of the corporation. With the outbreak of the war he had a vast amount of detail to command his attention and to all that work was added the task as head of the Petroleum Committee of the Council of National Defense of mobilizing the petroleum industry of the nation for the aid of America and her allies. Consequently while Mr. Bedford had been looking forward to the time when he could have Mr. Teagle as his chief and he deemed it wise to recommend the change at once.

For months Mr. Bedford has been engaged in a [illegible] to enterprise in Washington and has gathered the [illegible] operations of the big [illegible] and refineries [illegible] country. By the new arrangement Mr. Bedford while supervising the activities of the company's operations will be able to give such attention as may be necessary to the activities he may be called upon to perform in connection with the government.

[illegible] Mr. Teagle [illegible] associated [illegible] the Standard Oil [illegible]. The former [illegible] Standard Oil Company [illegible] assistant [illegible] executive. Mr. [illegible] and has had a remarkable practical training [illegible] the industry.

[illegible] Cleveland [illegible] with [illegible] and since then he [illegible]. He [illegible] Mr. Teagle [illegible] Mr. Bedford [illegible] Mr. Teagle [illegible] Mr. Bedford [illegible] which [illegible] Standard [illegible]

After three years with the Republic Oil Company, Mr. Teagle accepted a position in the export department of the Standard Oil Company (New Jersey). He traveled extensively and learned thoroughly every phase of the foreign business just as he had mastered every detail of production and manufacture. He was elected a director in 1910 and later became vice-president of the company. In January, 1914, he resigned to assume the presidency of the Imperial Oil Company, Ltd., of Canada, of which the Standard Oil Company (New Jersey) owns the controlling interest.

With masterly energy Mr. Teagle took up the management and development of that company and in three years he has greatly enlarged the corporation. Oil fields of Peru were developed by the International Petroleum Company, a subsidiary of the Imperial Oil Company. He built tank steamers to carry crude oil from the Peruvian fields to the new refineries he had built in Canada.

Mr. Teagle succeeds Mr. H. M. Tilford as director of the Standard Oil Company (New Jersey), the latter having resigned.

The selection of Mr. Teagle's successor as president of the Imperial Oil Company, Ltd., and the International Petroleum Company will be decided by the Canadian directors at the next annual meetings of those companies.

## STOCKS OF RAW MATERIALS.

WHILE it is true that it is difficult to secure raw materials in some lines of industry, at the same time it is likewise true that though the government will require in large volume much that otherwise would be turned into commercial manufactures, yet we must not overlook the fact that more than a normal volume of raw materials will be turned out, therefore the entire demand caused by war conditions will not have to be supplied from anywhere near the normal product of these raw materials.

Then, again, we have seen announcement to the effect that commercial lines would have to forego needed supplies of materials, in order to meet government demand. These matters, we are firm in our belief, will adjust themselves, since the government has not only obligated itself, but as well has obligated the employes of thousands of manufacturing enterprises through its sale of Liberty bonds *on the installment plan.*

The United States government has not only agreed to loan certain vast sums to foreign powers, but the government will require vast financial backing to meet its own expenditures. To meet these the government urged the employes of the United States to subscribe for Liberty bonds, but impressed upon those subscribing, to do so with the purpose of paying for the bonds out of *future incomes,* not from bank balances of today, etc.

Now since the government has thus induced large numbers of future-payment subscriptions to the bond issue, it must not place itself in the attitude of depleting the raw materials market, for were this to be done and raw materials be made unavailable to manufacturing enterprises, the latter would have to curtail on the number of employes, and in some instances possibly shut down completely, thus throwing out many or all employes, thereby making it impossible for such, having subscribed for Liberty Bonds, to meet their obligations to the government. In turn, it will be seen that the government could not meet its obligations to foreign countries, and to those institutions with which it has placed or will place vast contracts for equipment, etc., etc.

On the face of it the government will not find it advisable to throw commercial interests out of business by itself depleting the stocks of raw materials, even metals, though metals are of vital importance to the government in the present state of affairs.

The Council of National Defense, if that body shall have the handling and adjusting of such matters as protecting commercial interests, and through them the government, while at the same time not embarrassing the government through shortage of raw materials, will have its hands full, but that body being composed of far-seeing men of wide experience, will be equal to the occasion.

## NEW CATALOG OF "BEAVER" TOOLS.

The Borden Company, Warren, Ohio, has just issued its 1918 Catalog of "Beaver" Easy Working Die Stocks and square-end pipe cutters.

The catalogue is printed in two colors, on high grade paper, and illustrates in a complete and artistic manner the "Beaver" line of Easy Working cutters, die stocks and square-end pipes.

Several new "Beaver" tools are shown for the first time in this catalogue—one of the most popular of these being the new No. 3 "Beaver" Junior Ratchet Die Stock, which is built on the unit plan to thread pipe from one-eighth to one nich, inclusive.

A copy of the catalogue may be secured by those interested in "Beaver" tools by addressing the Borden Company.

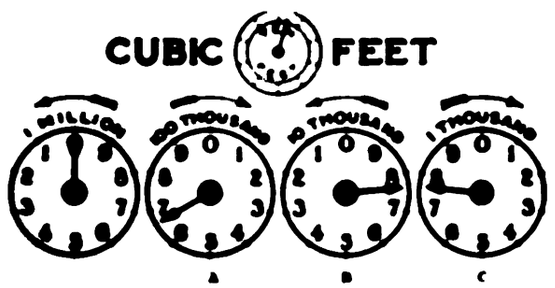
## PASTE INFORMATION ON METER

Thomas J. Nolan, Iroquois Natural Gas Co., Buffalo, N. Y.

Having often observed the number of consumers of gas who call at the office or write requesting a re-reading of their meter, which they believe has been read wrong for the monthly bill, and also, having noted how few of the users of gas know how to read a meter, I am prompted to offer the following wrinkle, which, I trust will meet with your approval.

Shown herewith is a sheet of instructions on how to read a gas meter and how to determine whether or not the house piping is leaking. Why would it not be a good idea to paste a sheet similar to this in a conspicuous place on all the meters in a district so that a consumer attempting to read his meter would not be at a loss as to how to read same and could readily verify the state of his monthly bill. At the same time it might be well to have something worked in which would make a test of house piping to determine whether or not same was leaking.

This scheme, I figure, would work better than any circulars passed among the consumers with this information, since such circulars are mislaid or lost and as a result the consumer is obliged to call at the office or write requesting a re-reading and a test of the house piping. In the scheme above mentioned the instructions are always where they are to be found and I think the plan would do away with much extra work along this line.




## READING THE METER

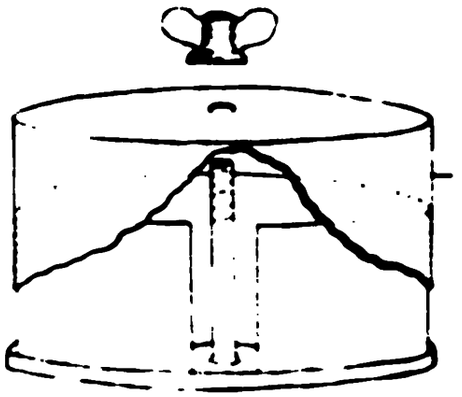
It is advisable that a [illegible] their gas meter [illegible] whether or not there is a leakage [illegible] The meter also is a means [illegible] ments.

A [illegible] has indicated [illegible] also it has not registered [illegible] remain and that [illegible] numerals left and all the figures to the [illegible] dial represents [illegible] Subtract [illegible] using gas during [illegible] cubic feet [illegible]

Determine whether there are any gas leaks [illegible] gas at the lights and other appliances in the [illegible] gas is used then wait. The hand on the [illegible] meter for half an hour. If the hand has moved at the [illegible] period it would then indicate that gas was leaking. In such event inspect all valves and fittings and if a leak is found repair at once. Leaking gas is dangerous and [illegible]

## MOISTURE-PROOF CONTAINER

J. J. Schmidt, Mfrs. Light & Heat Co., Pittsburgh, Pa.

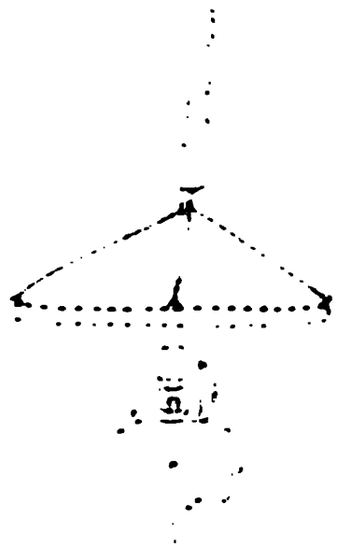


Moisture Proof Container for Recording Gauge Charts
Schmidt Mfrs. Light & Heat Co. Pgh. Pa.

Recording gauge charts should be kept dry. Moisture has a tendency to make the ink crawl and blur due to the swelling of the sizing and the capillary attraction of the ink in the moistened fibers of the paper. The container shown in drawing is a remedy for this trouble and may be constructed of 26 gauge sheet iron, terne or galvanized. A rubber gasket in the bottom edge and cover for the wing nut will make this an ideal container for gauge charts for use in regulator pits or other places where water and moisture are prone.

## ONE MAN CAN REMOVE DIAPHRAGM TOP

[illegible]



[illegible] DIAPHRAGM METER

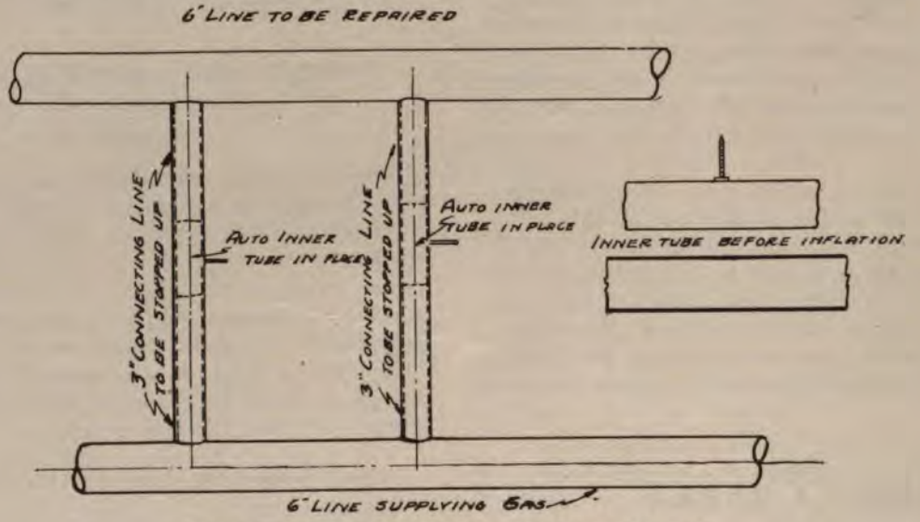
Make [illegible] man and regulator [illegible] test [illegible]

## TO STOP FLOW OF GAS.

Lon Jordan, Oklahoma Fuel Supply Co., Claremore, Okla.
W. W. Bruce, Superintendent Oklahoma Fuel Supply Co.
Chandler, Okla.

In repairing plant lines it frequently becomes necessary to cut out certain lines in order to repair others without interfering with the general supply to any great extent. It recently became necessary for us to repair a certain six-inch low pressure main, from which were connected two three-inch lines, which in turn were connected and were being supplied from other distributing stations. In order to free the six-inch line and continue service through the two three-inch lines, a stopper was necessary to avoid cutting out the two lines and capping them temporarily. To do this we used for such stoppers the inner tube from an automobile. We had these cut to a length of about one foot, leaving the valve connection remain and had the ends vulcanized. By drilling a one-inch hole in the mains it was easy to make the insertion of the inner tube, after which lung pressure was sufficient to inflate them, the regular valve holding the pressure sufficient to accomplish the purpose. After repairs were completed it became a simple matter to withdraw the tubes and insert plug in the line.

I submit a drawing and feel that you will clearly grasp the simplicity of the operation. Of course this would not apply to large lines for the reason the tubes would not be procurable, but serves for the conditions enumerated.


6" LINE TO BE REPAIRED
3" CONNECTING LINE TO BE STOPPED UP
AUTO INNER TUBE IN PLACE
3" CONNECTING LINE TO BE STOPPED UP
AUTO INNER TUBE IN PLACE
INNER TUBE BEFORE INFLATION
6" LINE SUPPLYING GAS

HOW TO USE INNERTUBE TO STOP FLOW OF GAS.

## TO INCREASE USE OF ADDING MACHINE.

C. C. Phillips, The Ohio Fuel Supply Co., Columbus, Ohio.

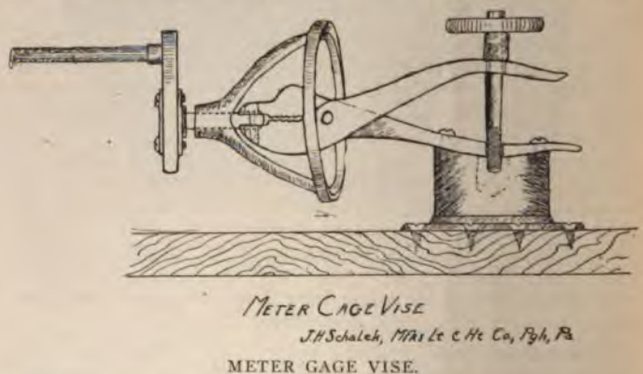
One of our adding machines is a 15-bank machine. The greater part of our straight addition is made up of numbers of five and six digits. To increase speed and decrease confusion, we have had a cover made for the first nine columns of this machine which can be put on or

removed in a second and which practically changes the bulky 15-bank machine to a small one of six columns. The cover is used as a shelf upon which the work is held, thus bringing the work close to the keyboard. When addition of larger numbers is desired, or when multiplying, the cover is set aside.

## METER GAGE VISE.

J. H. Schalek, Mfrs. Light & Heat Co., Pittsburgh, Pa.

Some meter cages are made of so soft a material which allows the bearing to wear rapidly, making it impossible to replace same in a properly repaired meter without re-




METER GAGE VISE.

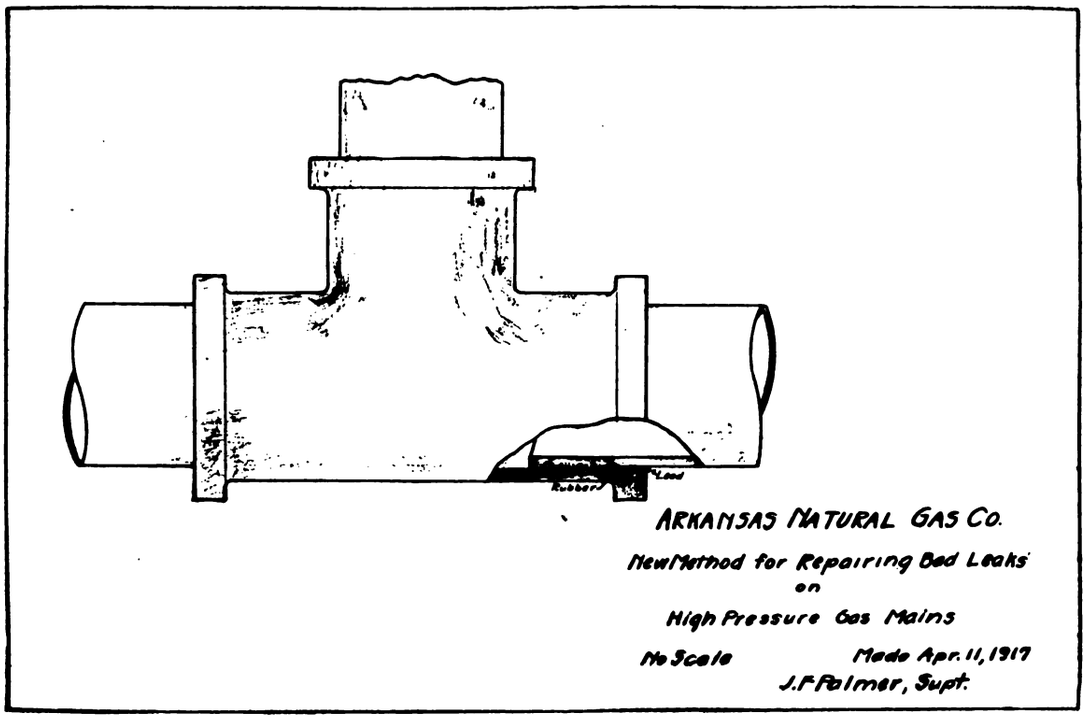
bushing same or substituting a new cage. To remove the cage the valve pin must also be taken out and it is often a problem for contortionists to effect this and keep cool. The vise as illustrated is easily made and will hold the cage in the proper position so that a few light taps on a punch will readily drive out the valve pin.

## REPAIRING HIGH PRESSURE LEAKS.

J. F. Palmer, Superintendent, Arkansas Natural Gas Company, Shreveport, Louisiana.

Occasionally there is found a leak in a fitting that is difficult to repair by the ordinary method. The prints herewith illustrate a method that has been successfully used under high pressure.

Cut off small "V" from around a collar leak, or coupling rubber. Insert in recess, fasten ends together by tying, then pour lead in the recess and calk.

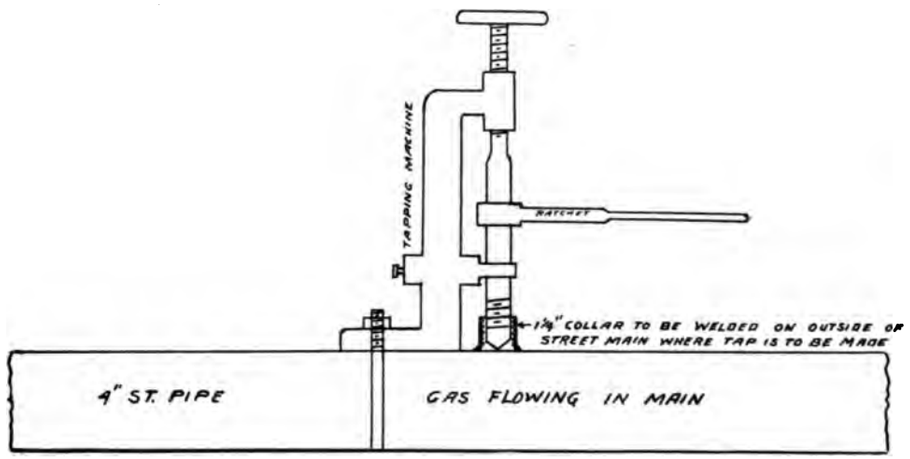



TO REPAIR HIGH PRESSURE LEAKS.

## WELDING TAP WITHOUT SHUTTING OFF GAS.

L. B. Benson, Bartlesville, Oklahoma.

A 1" or 1¼" tap can be welded on a street main with the gas on by welding a coupling of the size pipe to be used onto the main, then tapping a hole through the coupling as shown in the cut, removing the tap and screwing in the plug until ready for the service connection. This saves a saddle and two street ells.

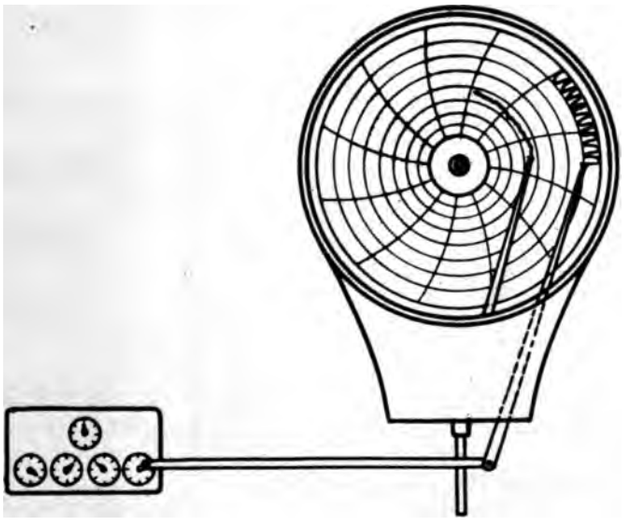

TAPPING MACHINE
RATCHET
1¼" COLLAR TO BE WELDED ON OUTSIDE OF STREET MAIN WHERE TAP IS TO BE MADE
4" ST. PIPE
GAS FLOWING IN MAIN

WELDING TAP FOR SERVICE LINE WITHOUT SHUTTING OFF GAS

## REVOLUTION COUNTER AND RECORDING PRESSURE GAUGE.

W. C. Baxter, Meter Dept., Empire Gas &Fuel Co., Bartlesville, Okla.

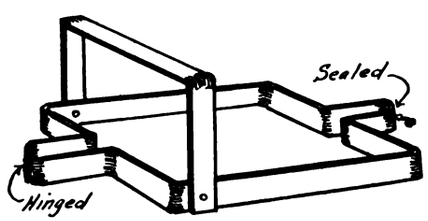
The accompanying sketch shows a method of connecting up a meter dial to an engine shaft and a pin on a recording pressure gauge. The driving pin on the meter dial is connected to the engine shaft and the one thousand foot hand is connected to the pen as shown. The pen makes a loop on the chart for every one thousand revolutions of the engine. This device is very useful on natural gas compressors, as it gives the revolutions of the engine and either the intake or discharge pressure on the same chart.



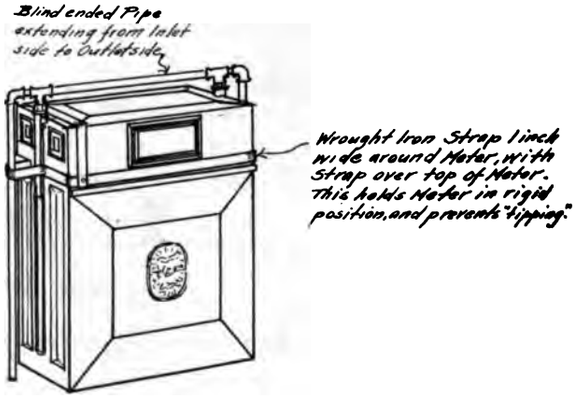
COMBINED REVOLUTION COUNTER AND RECORDING PRESSURE GAUGE

## TO PREVENT TIPPING OF METER.

G. C. Reed, Telephone Foreman and Meter Inspector, Lone Star Gas Co., Fort Worth, Texas.




DETAIL


Blind ended Pipe extending from Inlet side to Outletside.
Wrought Iron Strap 1 inch wide around Meter, with Strap over top of Meter. This holds Meter in rigid position, and prevents "tipping."

METER~SHOWING STRAP IN POSITION

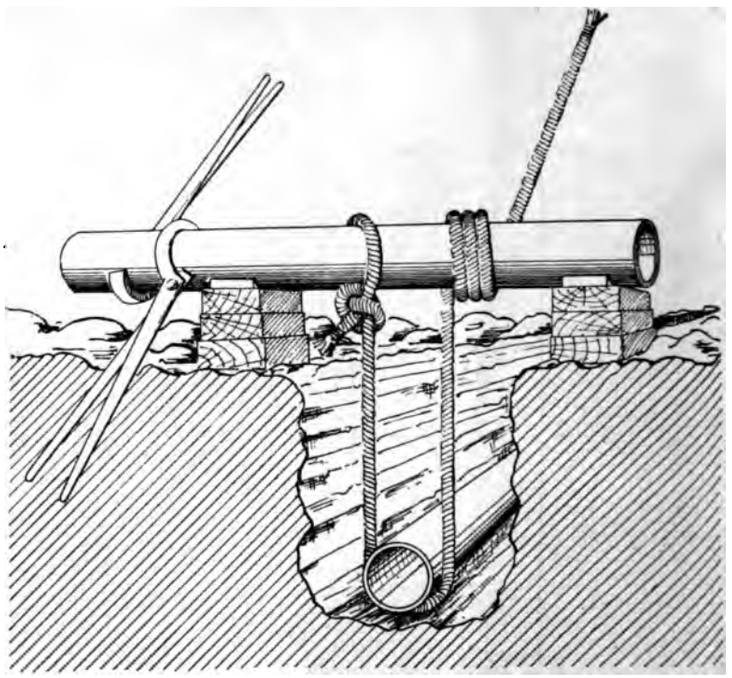
TO PREVENT METER TIPPING.

## WRENCH FOR TAKING PIPE OUT OF DITCH.

James P. Strickler, Columbus Gas & Fuel Co., Columbus, Ohio.

This is old to me, so much so that I hesitate about sending it; it may, however, be of some help to some of the boys who have not employed it.

Use a piece of either 4 or 6 inch pipe about 10 or 12 feet long, enough to cross your ditch and give you a good-bearing on both banks, two pair of pipe tongs and a good manilla rope about 1½ inches in diameter; make loop in one end and slip the rope around the pipe; put the rope under the pipe in ditch and then roll around your pipe above ditch three or four times; use three men, one each to man the tongs and one to hold the loose end of the rope. You can lift almost any size pipe out of the ditch with blocks of wood under your pipe sufficiently high enough so that you can put bart under the pipe above the ditch. This is a much quicker way to raise pipe than with a gin pole and horse and can be worked with much fewer men.



WRENCH FOR LIFTING PIPE FROM DITCH.

# RESULTS OF DRILLING—LATEST REPORTS

## PENNSYLVANIA FIELD.

### ALLEGANY FIELD

### BRADFORD FIELD

### MIDDLE FIELD

### VENANGO CLARION

### BUTLER ARMSTRONG

### SOUTHWEST PENNSYLVANIA

Duff Cats

Imperial

Beaver County

Mt Morris

## WEST VIRGINIA.

Mannington

Wirt County—
Trader, Alford & Co. 1 ..... Dry
Gilmer County—
Thomas, Hope Gas 1 ..... Gas
Knight, Philadelphia Co. 1 ..... Gas
Sinnett, Eastern Petroleum 1 ..... Dry
Smith, Trainor Bros. 1 ..... Gas
Pleasants County—
Tracker-Jackson, W. E. Metcalf 3 ..... Dry
Mainor, St. Mary's Oil 3 ..... Dry
Calhoun County—
Penninger, G. L. Cabot 2 ..... Gas
Kanawha County—
Sunday Creek Coal, U. F. G. 3 ..... Gas
Sunday Creek Coal, U. F. G. 4 ..... Gas
Thompkins, Frank Smith 1 ..... Dry
Belcher, G. L. Cabot 1 ..... Gas
Bower, K. V. P. 4 ..... Gas
Bower, K. V. P. 5 ..... Gas
Ward heirs, Cabin Creek Gas 11 ..... Gas
Thompkins, Eastern Carbon 4 ..... Gas
Thompkins, Eastern Carbon 5 ..... Gas

Dry ..... 17
Gas ..... 41

### SOUTHEASTERN OHIO.

Perry County—
Smith, Carter Oil 1 ..... Dry
Holmes and Knox—
Conrad, Buckeye State Gas 1 ..... Dry
Adams-Moyer, Crawford & Moyer 9 ..... Dry
Licking County—
Redman, Ohio Cities Gas 2 ..... Dry
Noble County—
Mahler, Wm. Patton & Co. 1 ..... Dry
Arnold, Gerian & Co. 1 ..... Dry
Dumberling, Leidecker & Stroughton 1 ..... Dry
Macksburg—
Boone, E. L. Hutcheson 8 ..... Dry
Stephens Bros., Jerry Buckley 1 ..... Dry
Schaffer, Oscar Patton & Co. 1 ..... Dry
Morgan County—
VanFossen, P. O. & G. 44 ..... Dry
VanFossen, P. O. & G. 45 ..... Dry
Smith, Henne Oil 36 ..... Dry
Athens County
Murn, Evans O & G 1 ..... Dry
Marietta—
Hendershot, Tort Bros. 3 ..... Dry
Breckenridge, Oil City Trust 16 ..... Dry
Patton, W. P. Jones Music 2 ..... Dry
Berg, Geo. Gale & Co. 20 ..... Dry
Becker, Echo Oil 19 ..... Dry
Riggs, J. H. Kiggins & Co. 11 ..... Dry
Myers, C. C. Stover 5 ..... Dry
Rousch, Patterson Bros. 3 ..... Dry
Hall, Winger, Speary & Co. 52 ..... Dry
Longfellow, Bell O. & G. 17 ..... Dry
Gorby, Shay, McMullin & Co. 3 ..... Dry
Carroll County—
Rodebaugh, Geldstein & Co. 1 ..... Dry
Moore, Benedum & Trees 1 ..... Dry
Jefferson County—
Linton, Thompson & Peters 1 ..... Dry
Carroll hrs., P. B. King & Co. 1 ..... Dry
Columbia County—
Christie, Renner-Deibel Co. 1 ..... Dry
Wentrick, M. Duncan & Co. 1 ..... Dry
Ramsayer, Renner-Deibel Co. 3 ..... Dry
Belmont County—
Poulton, Belmont Drilling 1 ..... Dry
Hall, O. F. S. 2 ..... Dry
Perkins, Borcher & Co. 8 ..... Dry
Boston lease No. 2, N. G. of W. Va. 1 ..... Dry

Dry ..... 36

## PENNSYLVANIA FIELDS.

### SUMMARY OF COMPLETED WORK.

| | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Allegany | 19 | 31 | 0 | 2 |
| Bradford | 49 | 131 | 1 | 0 |
| Middle Field | 19 | 19 | 3 | 4 |
| Venango-Clarion | 59 | 69 | 12 | 4 |
| Butler-Armstrong | 18 | 60 | 3 | 2 |
| West Virginia | 138 | 1,700 | 17 | 41 |
| Southwest Penna. | 37 | 138 | 15 | 4 |
| Southeast Ohio | 101 | 591 | 35 | 0 |
| Total October | 430 | 2,739 | 86 | 57 |

## CENTRAL OHIO.

### LICKING COUNTY.

Granville—Miller & Howel, J. C. Jones 1 ..... Gas
Licking—John Gourley, Heisey Gas 1 ..... Gas
Jesse R. Moore, Wehrle Stove 1 ..... Gas
St. Albans—R. Hammond, Heisey Gas 1 ..... Gas

Gas wells ..... 4

### FAIRFIELD COUNTY.

Walnut—C. H. & L. Clem, Ohio F. S. 1 ..... Gas
City Lancaster—210 Main St., Lancaster Lenz 1 .... Dry

Gas ..... 1
Dry ..... 1

### ASHLAND COUNTY.

Green—Maurer, Logan Gas & Fuel 2 ..... Gas
Perry—Friedline, Logan Gas & Fuel 1 ..... Dry
Lake—Sparks Bird, Logan Gas & Fuel 1 ..... Dry

Dry ..... 2
Gas ..... 1

### MEDINA COUNTY.

Westfield—A. Mong, Ohio Fuel Supply 1 ..... Gas
Lafayette—J. W. House, Medina G. & F. 1 ..... Gas
D. W. Weible, Medina Gas & Fuel 1 ..... Gas
I. J. Snyder, Medina Gas & Fuel 1 ..... Dry
Brunswick—McDowell, Medina Gas & Fuel 2 ..... Gas
Montville—Richards, Medina, Gas & Fuel 1 ..... Dry

Dry ..... 2
Gas ..... 4

### LORAIN COUNTY.

Grafton—M. Killip, Ohio Fuel Sup. 2 ..... Gas
J. Goodwin, Ohio Fuel Supply 1 ..... Gas

Gas ..... 2

### WAYNE COUNTY.

Cannan—S. Wagner, Ohio Fuel Sup. 1 ..... Gas
J. R. Cockrill, Jas. Brinkerhoff & Co. 1 ..... Gas
W. & E. Naftzger, Logan Gas & Fuel 3 ..... Gas
W. & E. Naftzger, Slagle & Co. 1 ..... Gas
H. Peak, Medina Gas & Fuel 1 ..... Gas
Wayne—D. & J. Showalter, Ohio F. S. 1 ..... Gas
Clinton—A. W. Campbell, East Ohio Gas 1 ..... Gas
Plain—A. G. Blosser, East Ohio Gas 1 ..... Gas

Gas ..... 8

### RICHLAND COUNTY.

Monroe—B. Oswald, Logan Gas & Fuel 1 ..... Gas

### CUYAHOGA COUNTY

### VINTON COUNTY

### JACKSON COUNTY

### PERRY COUNTY

### HOCKING COUNTY

### HOLMES COUNTY

### COSHOCTON COUNTY

## CENTRAL OHIO FIELD

### SUMMARY OF COMPLETED WORK

## LIMA FIELD

### HANCOCK COUNTY

### MERCER COUNTY

### SENECA COUNTY

### OTTAWA COUNTY

## INDIANA FIELD

### JAY COUNTY

### HUNTINGTON COUNTY

### DELAWARE COUNTY

### GIBSON COUNTY

### PIKE COUNTY

### SULLIVAN COUNTY

### MIAMI COUNTY

## INDIANA FIELD

### SUMMARY OF COMPLETED WORK

## KENTUCKY TENNESSEE

### WAYNE COUNTY

### WOLFE COUNTY

### LAWRENCE COUNTY

ESTILL COUNTY.

Irvine—Rawless, Crown Oil 15 ..... Dry
Fred Chatman, Bourboun Oil & D. 1 ..... Dry
Dilliard-Williams, Empire Oil & Gas 2 ..... Dry
Thomas Powell, Empire Oil & Gas 3 ..... Dry
Rawlies, Crown Oil 19 ..... Dry
Dan Miller, Dye & Young 9 ..... Dry
Allen Powell, J. H. Byrd 27 ..... Dry
William Adams, Federal Oil 8 ..... Dry
William Adams, Kentucky Pet. Prod. 13 ..... Dry
William Adams, Kentucky Pet. Prod. 15 ..... Dry

Dry ..... 10

POWELL COUNTY.

Pilot—J. M. Ashley, P. J. White 33 ..... Dry
W. M. Adams, Kentucky Pet. Prod. 11 ..... Dry
Hilton, Weideman & Slagle 1 ..... Dry
Hilton, Weideman & Slagle 2 ..... Dry

Dry ..... 4

LEE COUNTY.

Beattyville—William Orlinger, Federal Oil 1 ..... Dry

ALLEN COUNTY.

Scottsville—Aaron Thomas, Anderson T. Hurd 1 .... Dry
A. J. Dalton, Ohio Cities Gas 3 ..... Dry
Noah Dalton, Unknown 1 ..... Dry

Dry ..... 3

WHITLEY COUNTY.

Williamsburg—Dog Slaughter Creek, Empire Gas & Fuel 1 ..... Dry

BARREN COUNTY.

Glasgow—Dr. Summers, Unknown 1 ..... Gas

JACKSON COUNTY.

Deep Rock—Sid Linhart, Bahall, Foster & Parker 2 Dry

BOYLE COUNTY.

Junction City—M. Martin, Berwald Oil 1 ..... Dry

LARUE COUNTY.

Hodgenville—J. B. Holland, Lincoln Oil 1 ..... Gas
J. B. Holland, Lincoln Oil 2 ..... Gas
J. B. Holland, Lincoln Oil 3 ..... Gas
Wm. Brown, Ithaca Oil 1 ..... Dry

Dry ..... 1
Gas ..... 3

TAYLOR COUNTY.

Campbellsville—Morrison Dev. 1 ..... Gas
Morrison Development 2 ..... Gas
Morrison Development 3 ..... Gas
Morrison Development 4 ..... Gas

Gas ..... 4

HOPKINS COUNTY.

White Plains—Moss, Hill Oil & Gas 1 ..... Dry

## TENNESSEE.

SCOTT COUNTY.

Rugby Road—Sunbright, Young & Russell Bros. 1.. Gas

CRAWFORD COUNTY.

Oblong—D. T. Harbison, Ohio Oil 22 ..... Dry
Licking—Henry Coulter, Shanifelt & Co. 1 ..... Dry
B. Randolph, Stranahan & Chauvront 1 ..... Dry
Montgomery—E. E. Price, J. J. Cauley & Co. 1 ..... Dry
Alphus Jewe 1, Ohio Oil 16 ..... Dry
H. J. Goff, McNally & Co. 4 ..... Gas

Dry .. ..... 5
Gas .. ..... 1

CLINTON COUNTY.

Irishtown—J. E. Rogan, Flat Branch Oil 1 ..... Dry

WABASH COUNTY.

Wabash—S. C. Couch, Smith & Leighty 1 ..... Dry

McDONOUGH COUNTY.

Tennessee—G. E. Wallace, H. Deems & Co. 1 ..... Dry

## MID-CONTINENT.

## OKLAHOMA.

WASHINGTON COUNTY.

14-25-13, Craner, Natl. Oil Field 3 ..... Dry

OSAGE COUNTY.

16-21-10, C. W. Page 1 ..... Dry
1-22- 8, Privet, Harris Oil & Gas 2 ..... Gas
31-22-12, Lot 92, Osage & Okla. 1 ..... Dry
15-29-10, Lot 191, Ind. Ter. Ill. Oil ..... Gas
1-22- 8, Blk. 13, Hominy, Harris O. & G. 2 ..... Gas
9-22- 8, Block 4, Hominy, Yale Pet. 1 ..... Gas
6-24-10, Rogers, Echo Oil 3 ..... Gas
36-24- 8, Price Oil & Gas 1 ..... Dry
6-24-10, Echo Oil 3 ..... Gas
36-24- 8, West, Price Oil & Gas 5 ..... Dry
9-23- 8, Fish, Sinclair & Osage 79 ..... Gas
16-29-10, Boulanger, Ind. Ter. Ill. Oil 192 ..... Gas
15-24-11, Bray, Wolverine Oil 26 ..... Dry

Dry ..... 5
Gas ..... 8

BIRD CREEK AND FLAT ROCK.

27-21-13, Martin, Halsel et al. 3 ..... Dry
10-20-14, Young, Okla City O. & G. 1 ..... Gas
21-21-13, Corbin, Moore & Mallory 1 ..... Dry
8-20-14, Willis, Bachelor et al. 1 ..... Dry
28-21-13, McLane, Carlin O. & G. 1 ..... Dry
29-21-13, Webber, M. Shear et al. 2 ..... Dry
28-21-13, McClain, Corbin, Moore & Mallory 1 ..... Dry
31-21-13, Phillips, Hammett et al. 1 ..... Dry
29-20-14, Hatzell, Lyons et al. 1 ..... Dry
7-20-13, Chandler, J. A. Hull 1 ..... Gas
27-16-13, Frank, Petroleum 9 ..... Gas
29-20-14, Dannis, Ossenbeck & Lyons 1 ..... Dry
21-20-14, Langley, Lucas Oil 1 ..... Dry

Dry ..... 10
Gas ..... 3
Gas production ..... 10,000,000

CHEROKEE SHALLOW SANDS.

9-21-17, Teel, P. S. Johnson 10 ..... Gas
9-21-17, G. Teel, P. S. Johnson et al. 1 ..... Dry
10-21-17, Picaman, Unknown parties 1 ..... Dry
16-21-17, Bankhead, Creighton Bros. 1 ..... Dry
30-21-16, Gallman, Unknown parties 2 ..... Dry
7-20-16, Green, Morning Star Oil 1 ..... Dry
8-23-17, Stokes, Camilla Oil 6 ..... Dry
3-26-16, Randall, Boop, Sitz et al. 7 ..... Dry
8-23-17, Stokes, Camilla O. & G. 6 ..... Dry
8-25-16, McConnie, Big Four Oil 1 ..... Dry
14-26-15, Jansen, Hale & Purdy 2 ..... Dry

Dry ..... 10
Gas ..... 1
Gas production ..... 400,000

CLEVELAND, PAWNEE, MANNFORD AND JENNINGS.

32-19- 8, Nero, Cushing Dev. 4 ..... Dry
34-18-10, George, Bell Fountain Oil 2 ..... Dry
12-20- 9, County Farm, Kawfield Oil 1 ..... Dry
10-20- 9, Greenwood, Kawfield Oil 1 ..... Dry
11-20- 8, Mayfield, Jennings Oil 5 ..... Dry
23-19- 7, Bland, P. O. & G. 1 ..... Dry

...Cambridge Atlantic Pet ... Dry
... Alan Rosella et al ... Dry
... Williams Rex Davis ... Dry

...

TULSA DISTRICT GLENN POOL WICKY KELLYVILLE AND BIXBY

... Mary ... et al ... Dry
... Walker Valley et al ... Dry
... Tess L. A. Hull ... Dry
... Tulsa Cable State ... Dry
... Hartman & Woodard ... Dry
... Morrison & ... Dry
... Roberts H. F. Wilcox ... Dry
... Tess Dowell et al ... Dry
... Gas
... Tulsa State ... Gas
... Dry
... Dry
... Dry
... Dry
... Gas
... Dry
... Dry
... Dry
... Dry

36-16-14, Anderson, Billingslea 3 ..... Dry
20-14-14, Hagerson, P. O. & G. 5 ..... Dry
1-14-13, Rentie, E. D. Mitchell 3 ..... Dry
20-14-14, Jefferson, P. O. & G. 5 ..... Dry
16-14-15, Jefferson, John Rock 3 ..... Dry
14-14-14, Colbert, W. M. Kramer 1 ..... Dry
31-14-13, Bear, Botts et al. 1 ..... Dry
14-14-14, Colbert, W. M. Cramer 1 ..... Dry
28-14-14, Andy, Lambert et al. 8 ..... Dry
23-15-13, Sugar Okla. Queen O. & G. 2 ..... Dry
32-15-13, Roberts, B. L. Brookins 1 ..... Dry
19-14-13, Berryhill, Peerless Oil 2 ..... Dry

Dry ..... 16

**CUSHING-SHAMROCK.**

1-17- 7, Fixico, Monitor Oil & Gas 1 ..... Gas
22-18- 7, Boyd, Standard Oil & Gas 1 ..... Dry
17-18 7, Powell, Standard Oil & Gas 22 ..... Dry
5-18- 7, Rector, P. O. & G. 50 ..... Dry
34-17- 7, Mitchell, Iron Mountain Oil 24 ..... Dry

Dry ..... 4
Gas ..... 1
Gas production ..... 10,000,000

**YALE, QUAY AND PAYNE COUNTY.**

35-19- 5, Faddling, Shaffer & Gypsy 1 ..... Gas
12-18- 6, Johnson, Rex Oil 1 ..... Dry
24-18- 6, Wilson, Cushing-Santa Fe 2 ..... Dry

Dry ..... 2
Gas ..... 1
Gas production ..... 4,000,000

**BLACKWELL, PONCA CITY, NEWKIRK.**

6-28- 1, E., Wolf, Blackwell O. & G. 9 ..... Gas
31-28- 1, Sloan, Bermont Oil & Gas 1 ..... Gas
31-29- 1, Davis, Spencer 2 ..... Dry
8-28- 1, Simmons, Southwestern Oil 1 ..... Dry

Dry ..... 2
Gas ..... 2
Gas production ..... 30,000,000

**GARFIELD AND NOBLE COUNTIES.**

15-23- 2, W., Niel Humphries Petroleum 2 ..... Gas
7-22- 3, Giles, Sinclair O. & G. 1 ..... Dry
13-22- 4, Walker, Cosden O. & G. 1 ..... Gas
9-23- 2,, Harrington, Quadrangle Oil 1 ..... Dry
26-23- 3, Boyle, American Oil 1 ..... Dry
26-22- 3, Boyles, American Industrial Co. 1 ..... Dry
3-23- 2, Pierce, Atlantic Petroleum 1 ..... Dry
29-22- 4, Savage, Okla. Refining 1 ..... Dry

Dry ..... 6
Gas ..... 2
Gas production ..... 6,000,000

**HEALDTON.**

11- 4- 3, Lowery, Geneva Pearl Oil 8 ..... Dry
20- 2- 3, McCowan, Plains O. & G. 1 ..... Gas
13- 4- 3, Couch, Ohio Oil 1 ..... Dry
4- 4- 3, Clark, Geneva Pearl Oil 8 ..... Dry

Dry ..... 3
Gas ..... 1
Gas production ..... 12,000,000

**WILDCATS.**

Love County—
13-7S-3W, Rubottom, Pierce Fordyce 1 ..... Dry
Jefferson County—
9-5S-4W. Story, NorfleetOil 1 ..... Dry
Haskell County—
17-9N-23E, McKee, et al. 1 ..... Dry
Pontotoc County—
8-4N-6E, McDaniels, American O. & R. 1 ..... Gas
15-2N-4E, Suddath, Shoemaker et al. 1 ..... Dry
Muskogee County—
4-13-19, Cobb, Musselman & Stein 1 ..... Dry
Creek County—
19-15- 7, McIntosh, Sinclair Oil & Gas 1 ..... Dry
29-17-10, Crow, C. B. Shaffer 1 ..... Dry
Rogers County—
21-19-17, Blackstone, Pitman et al. 2 ..... Dry
Wagoner County—
23-17-18, Moody, Kimbley et al. 1 ..... Dry
Muskogee County—
30-13-17, Tiger, Navy Oil & Gas 2 ..... Gas
Seminole County—
8- 9- 5, Dodds, Wilstone Oil 1 ..... Dry
Pawnee County—
4-22- 3, Diamond, Fortuna Oil 1 ..... Gas
Lincoln County—
30-17- 3, White, Roxana Petroleum 1 ..... Dry
Pontotoc County—
5- 3- 6, Winters, Skelly and Sankey 1 ..... Dry
Grant County—
34-28N-7W, McKee, American Pet. 1 ..... Dry
Okfuskee County—
2-13- 9, Keys, Kimbley et al. 1 ..... Dry
Pawnee County—
5-22- 3, Diamond, Fortuna Oil 1 ..... Dry
Pontotoc County—
17-4- 6, Latta, Skelley & Sankey 1 ..... Gas
Jefferson County—
9-5S- W. Story, Norfleet Oil 1 ..... Dry
Pottawatomie County—
7- 7- 5, Rose, P. O. & G. 1 ..... Dry
Marshall County—
19-7S-5E, Willis, Indian Chief Oil 1 ..... Dry
Jefferson County—
3-7S-6W, Ott, I. N. Oil 1 ..... Dry
Payne County—
23-18- 4, Ramsey, Dickwills Oil 1 ..... Dry

Dry ..... 20
Gas ..... 4
Gas production ..... 30,000,000

## KANSAS.

**BUTLER COUNTY.**

29-29- 4, Eckel, Empire G. & F. ..... Dry
34-24- 4, Hull, Goldenrod Oil 11 ..... Dry
5-25- 5, Dunkle, Van Pelt 1 ..... Dry
14-28- 4, Rierson, Empire G & F. 4 ..... Dry
14-28- 4, Rierson, Empire G. & F. 5 ..... Dry
18-24- 4, Find, Empire G. & F. 4 ..... Dry
21-27- 4, Foster, Magnolia Petroleum 38 ..... Dry
9-29- 4, Elder, Empire G. & F. 6 ..... Dry
10-27- 5, Leedy, Haverhill Petr. 1 ..... Dry
7-25- 4, Ellis, Mid-Kansas Oil 1 ..... Dry
22-25- 5, Atkins, Galbraith & Compton 5 ..... Dry
7-25- 5, Wilson, Empire G. & F. 34 ..... Dry
36-24- 4, Corter, Magnolia Petr. 1 ..... Dry
33-24- 4, Biggs, Empire G. & F. 1 ..... Dry
3-25- 5, Hewitt, Gypsy Oil 1 ..... Dry
4-25- 5, Dunkle, Ramsey Petr. 1 ..... Dry
10-29- 4, Warner, Mid Kansas O. & G. 1 ..... Dry
9-25- , Wilson, P. O. & G. 1 ..... Dry
3-25- 5, Bond, Norval et al. 1 ..... Dry

Dry ..... 19

**MONTGOMERY COUNTY.**

16-33-13, McQuiston, E. S. Riley 1 ..... Dry
9-33-13, Hinkley, M. Martin 3 ..... Dry
28-32-16, Lange, F. E. Miller et al. 4 ..... Dry
14-34-14, Dobson, E. A. Durham 15 ..... Dry
3-34-15, Focht, Pleasant Hills O. & G. 3 ..... Gas
32-31-16, Turner, Standard Oil of Ind. 8 ..... Dry
33-32-16, Jones, Day et al. 2 ..... Dry
35-35-15, Stelp, Patterson Bros. et al. 1 ..... Dry
5-31-16, Brinkman, Kansas O. & G. 1 ..... Dry

[illegible] Jones Day et al [illegible] Dry

[illegible]
Dry [illegible]
Gas [illegible]
[illegible]

CHAUTAUQUA COUNTY

[illegible] Walker & Upper [illegible] Dry
[illegible] Salem Coal [illegible] Gas
[illegible] Gas
[illegible] & [illegible] Big Hill Coal [illegible] Dry
[illegible] Meeker & Parr [illegible] Dry
[illegible] Walker & Upper [illegible] Dry
[illegible] W. M. Page et al [illegible] Dry
[illegible] Gas
[illegible] Gas
[illegible] Gas
[illegible] Gas
[illegible] Dry
[illegible] Gas

[illegible]
Gas [illegible]
[illegible]

FRANKLIN AND DOUGLAS

[illegible] Gas
[illegible] Gas
[illegible] Gas
[illegible] Dry
[illegible] Dry
[illegible] Dry
[illegible] Dry
[illegible] Dry
[illegible] Gas
[illegible] Dry
[illegible] Gas
[illegible] Dry
[illegible] Dry
[illegible] Gas
[illegible] Gas
[illegible] Gas
[illegible] Gas
[illegible] Gas

[illegible]
[illegible]

WILSON COUNTY

[illegible] Gas
[illegible]
[illegible] Gas
[illegible]
[illegible] Dry
[illegible]
[illegible]
[illegible]
[illegible] Gas
[illegible]
[illegible] Gas
[illegible] Gas
[illegible] Gas
[illegible] Gas

[illegible]
[illegible]

WILDCATS

[illegible]
[illegible] Dry
[illegible]
[illegible] Dry
[illegible]

## OKLAHOMA

SUMMARY OF WELLS COMPLETED

| | Comp | Prod | Dry | Gas |
|---|---|---|---|---|
| Cherokee [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| Cherokee [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| Osage | [illegible] | [illegible] | [illegible] | [illegible] |
| Creek Nation | [illegible] | [illegible] | [illegible] | [illegible] |
| Kay County | [illegible] | [illegible] | [illegible] | [illegible] |
| Garfield County | [illegible] | [illegible] | [illegible] | [illegible] |
| Healdton | [illegible] | [illegible] | [illegible] | [illegible] |
| Seminole-Shawnee | [illegible] | [illegible] | [illegible] | [illegible] |
| Cleveland | [illegible] | [illegible] | [illegible] | [illegible] |
| Wildcats | [illegible] | [illegible] | [illegible] | [illegible] |
| Total | [illegible] | [illegible] | [illegible] | [illegible] |

## KANSAS

SUMMARY OF WELLS COMPLETED

| | Comp | Prod | Dry | Gas |
|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] Douglas | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| Wildcats | [illegible] | [illegible] | [illegible] | [illegible] |
| Total | [illegible] | [illegible] | [illegible] | [illegible] |

## MID-CONTINENT

SUMMARY OF WELLS COMPLETED

| | Comp | Prod | Dry | Gas |
|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| Kansas | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

## TEXAS PANHANDLE

WICHITA AND WILBARGER COUNTIES

[illegible]
[illegible] Gas
[illegible] Dry
[illegible] Dry
[illegible] Dry

[illegible]
[illegible]

UPSHUR DISTRICT

[illegible] Dry
[illegible] Dry
[illegible] Dry
[illegible] Dry

[illegible]
[illegible]

SUBSEQUENT

[illegible] Dry
[illegible] Dry
[illegible] Dry
[illegible] Dry
[illegible] Dry
[illegible] Dry
[illegible] Dry
[illegible] Dry

[illegible]
[illegible]

**PETROLIA.**

Dunn, Prime Oil & Gas 3 ..... Dry
Dunn, Gulf Production 4 ..... Dry

Dry Holes ..... 2

**STRAWN.**

Fee, Texas & Pacific Coal 223 ..... Dry
Fee, Texas & Pacific Coal 224 ..... Dry
Stewart, Texas & Pacific Coal 72 ..... Dry
Stewart, 2nd 1, Texas & Pacific Coal 1 ..... Dry
Naylor, Texas & Pacific Coal 1 ..... Dry

Dry Holes ..... 5

**WILDCATS.**

Archer County—
Blaig, Lee Farm Oil 6, 7, 8 ..... Dry
2nd Blaig, Lee Farm Oil 1 ..... Dry
Mitchell Spring Oil 1 ..... Dry
Griffin, Fortuna Oil 1 ..... Dry
Wichita County—
Fassett, Wichita Falls Fuel Dev. 1 ..... Dry
Young County—
Benson, Stanfield & Beckworth 2 ..... Dry
Coleman County—
Babbington, Mutual Oil 1 ..... Dry

Dry Holes ..... 7

## NORTH LOUISIANA.

Caddo—
27-20-16, Brown, Caddo Oil & Ref. 46, 48 ..... Dry
25-20-15, Glassell Red River Valley Oil 1 ..... Gas
De Soto—
14-13-12, Sample, Producers Oil A-9 ..... Dry
28-13-11, Nabors, T. B. Owens et al. 3 ..... Dry
Bossier—
31-16-12, Horton, Standard Oil 2 ..... Gas
24-16-12, Caplis Producers Oil 1 ..... Gas
Miscellaneous—
17-13, Deal, Producers Oil 3 ..... Gas
17-13, Berry, Ark. Nat. Gas 56 ..... Gas
16-12, Gayle, Ark. Nat. Gas 61 ..... Gas
37-20- 5, Spyker, Southern Carbon 2 ..... Gas
Texas—
Marion Co. So. Lumber Co., Rosedale et al. 1 ..... Dry
Misc.—
Hinds Co., Swearingen, Ark. Nat. Gas 54 ..... Dry

Dry ..... 5
Gas Wells ..... 7

## NORTH LOUISIANA.

**SUMMARY OF OPERATIONS.**

| | Comp. | Prod. | Dry. | Gas |
|---|---|---|---|---|
| Caddo | 31 | 4,300 | 1 | 1 |
| De Soto | 3 | 65 | 2 | 0 |
| Red River | 1 | 110 | 0 | 0 |
| Bossier | 2 | 0 | 0 | 2 |
| Miscellaneius | 7 | 25 | 2 | 4 |
| October | 44 | 4,590 | 5 | 7 |

## GULF COAST REGION.

**ANSE LA BUTE.**

Patin, Federal Production 2 ..... Dry

**GOOSE CREEK.**

Churchill, Gulf Production 9 ..... Gas
Schilling, Simm-Sinclair 18 ..... Gas
Smith, Simms-Sinclair 14 ..... Gas

Gas ..... 3

**HUMBLE.**

Koehler, Producers Oil 15 ..... Dry
Landslide, Southern Petroleum 28 ..... Dry

Dry ..... 2

**SOUR LAKE.**

Hardin, Gulf-Humble 17 ..... Dry
Hardin, Gulf Production 27 ..... Dry

**MISCELLANEOUS.**

Washington County—
Mill Creek, Producers Oil 1 ..... Dry
Houston County—
East of Crockett, Grady O. & G. ..... Gas
San Patricio County—
Siedermann, Southern Gas 1 ..... Dry
Powell County—
White land, Deep Sand Oil 1 ..... Gas
Tom Green County—
San Angelo, San Angelo O. & G. 1 ..... Gas

Gas ..... 3
Dry ..... 2

## STANDARD OIL SUBSIDIARIES.

By JO. P. CAPPEAU SONS.

| | | Open | High | Low | Last |
|---|---|---|---|---|---|
| £ | Anglo American | 16¾ | 16¾ | 15½ | 14¼ |
| 50 | Buckeye Pipe | 82 | 83 | 80 | 83 |
| $100 | Atlantic Ref. | 820 | 820 | 760 | 780 |
| 100 | Borne-Scrymser | 370 | 380 | 380 | 380 |
| 100 | Chesebrough | 325 | 325 | 325 | 325 |
| 100 | Colonial | 40 | 40 | 40 | 40 |
| 100 | Continental | 500 | 500 | 440 | 440 |
| 50 | Crescent | 32 | 32 | 32 | 32 |
| 100 | Cumberland | 130 | 130 | 130 | 130 |
| 100 | Eureka | 195 | 195 | 185 | 190 |
| 100 | Galena Com. | 130 | 130 | 125 | 125 |
| 100 | Galena, Pref. | 120 | 123 | 120 | 123 |
| 100 | Illinois Pipe | 195 | 195 | 175 | 175 |
| 50 | Indiana Pipe | 85 | 85 | 78 | 78 |
| 12½ | National Transit | 11 | 12 | 11 | 12 |
| 100 | New York Transit | 190 | 190 | 175 | 195 |
| 100 | Northern Pipe | 95 | 95 | 95 | 95 |
| 25 | Ohio Oil | 295 | 298 | 283 | 283 |
| 100 | Prairie Oil | 410 | 410 | 390 | 390 |
| 100 | Prairie Pipe Line | 238 | 238 | 220 | 220 |
| 100 | Solar Refining | 295 | 295 | 270 | 290 |
| 100 | Southern Pipe | 190 | 190 | 180 | 180 |
| 100 | South Penn. Oil | 240 | 245 | 240 | 240 |
| 100 | South West Penn. Pipe | 103 | 104 | 102 | 102 |
| 100 | S. O. of California | 205 | 220 | 205 | 210 |
| 100 | S. O. of Indiana | 630 | 630 | 575 | 585 |
| 100 | S. O. of Kansas | 475 | 475 | 410 | 430 |
| 100 | S. O. of Kentucky | 330 | 335 | 325 | 333 |
| 100 | S. O. of Nebraska | 450 | 450 | 425 | 425 |
| 100 | S. O. of New Jersey | 515 | 525 | 505 | 505 |
| 100 | S. O. of New York | 227 | 240 | 227 | 235 |
| 100 | S. O. of Ohio | 430 | 430 | 420 | 420 |
| 100 | Swan & Finch | 95 | 95 | 90 | 90 |
| 100 | Union Tank | 85 | 85 | 78 | 78 |
| 100 | Vacuum Oil | 335 | 335 | 315 | 315 |
| 10 | Washington Oil | 25 | 25 | 25 | 25 |
| 25 | Penn-Mex. | 35 | 37 | 35 | 35 |
| 5 | International Petroleum | 12 | 12 | 9½ | 10 |
| | **Independent Oil Companies.** | | | | |
| 25 | Pierce Oil | 8½ | 8½ | 8 | 8½ |
| 50 | Midwest Refining | 112 | 118 | 102 | 106 |
| 25 | Tropical Oil | 7 | 7 | 6 | 6¼ |
| 5 | Cosden Refining | 7½ | 7⅝ | 6¼ | 6¼ |
| 5 | Sapulpa Refining | 8⅞ | 8⅞ | 8¼ | 8¼ |
| 5 | Cosden Oil & Gas Pfd. | 3¾ | 3⅞ | 3½ | 3⅝ |
| 5 | Okla. Producing & Refining. | 6⅞ | 7 | 6½ | 6½ |
| 5 | Atlantic Petroleum | 3½ | 3½ | 2½ | 3½ |
| 10 | Merritt Oil | 31 | 31½ | 21½ | 21½ |
| 1 | Midwest Oil | 120 | 122 | 103 | 108 |
| 5 | Osage-Hominy Oil | 6⅞ | 7 | 6½ | 6½ |

# AROUND THE BELT

**New Wells, New Pipe Lines, New Contracts, Additions and Extensions. A Fund of Valuable News Gathered for the Journal Through Many Sources.**

## TRADE PERSONALS

[illegible] to the extent that the names appearing under the personal headings are necessarily those of men interested in the development of the natural gas field. Those wishing to learn of matters pertaining to men interested in the field of artificial gas should refer to THE GAS INDUSTRY magazine published at 65 Pearl Street, Buffalo, N. Y., which devotes its columns entirely to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being the best issued for its respective field. In this way each magazine contains [illegible] in the industry it covers. **Publisher's Note**

[illegible] has been appointed Assistant to the Secretary of the Mid-Continent Oil & Gas Association, Tulsa, Okla.

Emerson, W. R., formerly Auditor of Muskogee Gas & Electric Company, has been appointed General Auditor of all Oklahoma Gas & Electric Company properties, with headquarters at Oklahoma City.

Lockwood, Mrs. L., Superintendent of the Bluefield Gas & Power Company, Bluefield, West Virginia, has resigned from her position in order to give her services to the government as a lieutenant in the aviation corps.

Manson, C. [illegible], formerly secretary and auditor of the Toledo Railways & Light Company, Toledo, Ohio, recently became associated with the Empire Gas & Fuel Company, Bartlesville, Okla., in a similar capacity.

Sumner, J. H., has been appointed Auditor of the Muskogee Gas & Electric Company, Muskogee, Okla.

Sweetman, M. M., President of the Oil Exchange recently organized at Kansas City, Mo.

[illegible] Vice President and Secretary of the Toledo Railways & Light Company, Toledo, Ohio.

[illegible] Manager for the Empire Gas & Fuel Company, Bartlesville, Okla., has been appointed [illegible] Manager of the Muskogee Gas & Electric Company, Muskogee, Okla.

## INCORPORATED

**DELAWARE—Dover**

The Standard Oil & Gas Company, capital $[illegible], has been organized. Directors are [illegible] Stanley, E. V. Armstrong and [illegible] Muskogee, Okla.

The Superior State Oil & Gas Company has been incorporated under the laws of this state with a capital of $[illegible]. The incorporators are J. D. Burk, [illegible] and K. L. Longfellow, all of Muskogee, Okla.

## NEW FRANCHISES

It must be noted that the franchises referred to below are those specifically granted natural gas companies. Those desiring to learn of franchises granted artificial gas companies should refer to THE GAS INDUSTRY magazine published at 65 Pearl Street, Buffalo, N. Y., which devotes its columns entirely to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being exclusively issued for its respective field, and each containing reports of franchises in the industry it covers. **Publisher's Note**

**LOUISIANA—Gretna**

W. A. Campbell has been awarded a franchise under which he will deliver gas in this city. The rate provided for small consumers is 35 cents per thousand, while the rates for large users range down to 15 cents per thousand.

**New Orleans**

An ordinance granting to William A. Campbell the right of laying pipes to deliver natural gas from Houma, La., to New Orleans has been introduced in commission council. According to the provisions of the ordinance, if the consumption of the gas reaches forty million cubic feet a day the consumer is promised a rate of 40 cents per thousand cubic feet in the ordinance. Not more than 50 cents per thousand cubic feet would be charged the consumer irrespective of the consumption.

**NEW YORK—Painted Post**

The Crystal City Gas Company has applied for a fifty-year franchise to supply gas in this city. The proposed franchise would give the company the right dating from November 1 of this year. Natural gas, or mixed gas of the character of Painted Post's present gas, for illuminating and other purposes.

## PER CUBIC FOOT—RATES

[illegible] to the gas rates referred to below are those of companies [illegible] gas from their own wells. Those desiring to learn of rates charged by artificial gas companies should refer to THE GAS INDUSTRY magazine published at 65 Pearl Street, Buffalo, N. Y., which devotes its columns entirely to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being exclusively issued for its respective field, and each containing reports of rates in the industry it covers. **Publisher's Note**

**ARKANSAS—Little Rock**

The Little Rock Gas & [illegible] has [illegible]

**NEW YORK—Buffalo**

The Iroquois Natural Gas Company has filed a petition asking permission to increase its rates 5 cents per thousand to small consumers, and 10 cents per thousand to large consumers.

**Corning**

The Crystal City Gas Company has petitioned the Corning common council to amend its franchise so as to permit the company to charge 55 cents per 1,000 feet for natural gas. The current rate is 45 cents per 1,000 feet. The company's franchise provides that the rate shall not exceed 50 cents.

**Olean**

The Keystone Gas Company announces that beginning January 1st its rates will be increased from 35 cents to 42 cents per thousand for domestic purposes, and to city, schools and colleges, from 25 cents to 34 cents per thousand feet. A discount of 2 per cent. per thousand will be allowed as at present.

**WEST VIRGINIA—Harrisville**

The public service commission has granted permission to the West Virginia Heat & Light Company to increase its rates for gas service at Harrisville, Pennsboro and other communities in Ritchie County. The new rates are 25 cents a thousand for the first 50,000 cubic feet, or fraction thereof, and 20 cents net per thousand for all in excess of 50,000 feet. A minimum charge of 50 cents a month also is provided; and a discount of five per cent. is allowed from the 25-cent rate for prompt payment of bills.

## ITEMS OF FINANCE

**It will be noted that the companies mentioned under this head are all of them institutions drilling and distributing natural gas. Those wishing to obtain a knowledge concerning the important institutions in the artificial gas field are referred to THE GAS INDUSTRY magazine, published at 60 Pearl Street, Buffalo, N. Y., which devotes its columns exclusively to artificial gas matters. THE GAS INDUSTRY is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being specifically issued for its respective field, and each, therefore, rendering 100% efficiency in the industry it covers.—Publisher's Note.**

**ILLINOIS—Chicago**

According to the recently issued report of H. M. Byllesby & Company, the earnings for October of this year and the month of October as compared with last year were as follows:

| | Gross | Operating Expenses | Net |
|---|---|---|---|
| October, 1917 ..... | $1,628,949 | $941,950 | $686,999 |
| 12 months ..... | 18,696,538 | 10,096,288 | 8,600,250 |
| October, 1916 ..... | 1,439,939 | 728,777 | 711,162 |
| 12 months ..... | 16,789,573 | 8,544,999 | 8,244,574 |

**OHIO—Cincinnati**

Ohio Cities Gas Company has declared the regular quarterly dividend of $1.25 a share on preferred stock, payable January 1 to stock of record December 15.

**OKLAHOMA—Oklahoma City**

The Board of Directors of the Oklahoma Gas & Electric Company has declared the regular quarterly dividend of 1¾% on the preferred stock of the company, payable December 15, to stockholders of record November 30.

**Muskogee**

The Board of Directors of the Muskogee Gas & Electric Company has declared the regular quarterly dividend of 1¾% on the preferred stock of the company, payable December 15, to stockholders of record November 30.

## GENERAL

**It will be noted that the items appearing under this heading pertain specifically to natural gas matters, development in natural gas fields, etc. Those wishing to obtain a knowledge of the newest developments along artificial gas lines, are referred to THE GAS INDUSTRY magazine, published at 60 Pearl Street, Buffalo, N. Y., which devotes its columns exclusively to artificial gas matters. That magazine is published by the publishers of THE NATURAL GAS JOURNAL, each magazine being specificially issued for its respective field, and each, therefore, rending 100% efficiency in the industry it covers.—Publisher's Note.**

**ALABAMA—Birmingham**

To fully develop the present gas field near Birmingham and to prospect for the development of an oil field which experts maintain lies near the present gas field, the Dixie Gas Company has been organized by Birmingham and New York interests. This company has taken over the assets and properties of the Gulf Producing Company, which discovered gas on the Aldrich dome, eight miles south of Birmingham, and has already brought in two gas wells with an aggregate capacity of 1,700,000 cubic feet of gas. Three other wells are now being drilled and it is believed that oil underlies the gas sand strata. W. F. Aldrich of this city is president of the new company.

**ARKANSAS—Fort Smith**

A second natural gas well has been drilled in in the territory adjacent to the city, which is being tested.

The American Indian Oil & Gas Company has awarded contracts for the drilling of three wells in this territory.

**CALIFORNIA—Bakersfield**

Is is reported that an eight-hour day and a minimum wage of $4 are to become effective in the oil and gas fields of the state January 1, 1918.

**McKittrick**

The Railroad Commission has authorized the Producers Gas & Fuel Co. to sell 1,000 shares capital stock of a par value of $100 a share, at not less than $80 net, the proceeds to build the company's natural gas transmission and distribution system in Kern County.

**INDIANA**

According to the United States Geological Survey Report for 1916, the state of Indiana produced 1,715,499,-

...feet of natural gas during the year 1916 ... cents per thousand cubic feet, or a total of ... During the same period of one year Indiana ... cubic feet of natural gas worth 14,78... cubic feet or a total of $7,760,38... worth ... gas.

**KANSAS—Wichita**

... report the Doherty organization is ... the American Pipe Line Company and La... ... of the United States Government ... The American Pipe Line Company ... acreage in Chautauqua County and has a ... the Kansas fields through Eager and ... Wichita Natural Gas Co... ... cubic feet of gas ...

**KENTUCKY Louisville**

... during the ... Northern gas region ... The gas ... the corresponding ... of 1916.

**LOUISIANA—Shreveport**

... White gas well ... Drake Investment ... great ... gas.

**MONTANA—Gilman**

...

**Havre**

...

**NEW YORK—Allegany**

...

**Buffalo**

...

**New York City**

...

**Pavilion**

The Pavilion Natural Gas Company completed a good well on the Patrick Quinlan farm one mile south of this village.

**NORTH DAKOTA—Sanish**

While drilling an artesian well on the Black ranch ... struck a strong flow of water and natural gas ... depth of about 900 feet. Both products will be ... over the farm.

**OHIO—Ashland County**

In Hanover Township the Ohio Fuel Supply Company drilled a light gas well ... test on the Charles Sackie farm ... section 7.

**Bucyrus**

The compressor stations at Burgoon and West Salem ... gas pressure ... materially ... operating ... in the eastern Ohio gas ... The service of the Mechanicsburg Fuel Company ... materially ...

**Crestline**

The Crestline Gas Line Company consists of two ... gas wells and many valuable leases north ... Crestline have struck gas in a third well. The ... found at the ... other wells ...

**Cuyahoga County**

... the Cleveland ... the ... Ohio ... Light ... Public ...

**Fairfield County**

... drilled ...

**Hocking County**

...

**Jefferson County**

...

**Licking County**

...

**Lima**

...

**Perry County**

...

**Richland County**

In Monroe Township the Logan Gas & Fuel Company has a good well in a test on the N. Smith farm, Section 24.

The Ohio Fuel Supply Company has a good gasser on the Sam Andrews farm, Section 27.

**Vanlue**

This city is being supplied with gas by the Vanlue Natural Gas & Stock Farm which recently completed its distributing system. W. M. Eatherton is manager of the company.

**Wooster**

The Eddy well, owned by Doherty interests, located twenty miles southwest of Wooster, and twenty-four miles from Mansfield, is reported to be making about 11,000,000 cubic feet per day.

**Zanesville**

The Zanesville Oil Company struck a good flow of gas at a depth of 1,200 feet on the farm of Sylvester Muller, near Zanesville.

**OKLAHOMA—Ardmore**

Philips & Franklin drilled in a gas well on the Dougherty farm, Section 29-2-3, Fox District, which is estimated at 44,000,000 cubic feet. The top of the sand was found at a depth of 1,670 feet.

**Cyril**

The Fortuna Company reports the bringing in of a very large gasser on its leases near Cyril.

**Oilton**

The plant of the Midfield Gas Company has been placed in commission, and the company is supplying gas.

**Pittsburgh County**

The Cardinal Oil Company has completed a 16,000,000 cubic foot well on the Fears tract, in Section 26-9-16, at a depth of 1,900 feet.

**Quinton**

The Quinton Oil & Gas Company has changed its name to Pittsburgh Oil & Gas Company.

**Walters**

It is reported that John C. Keys of Lawton has sold his gas production and part of his acreage in the Walters field to the Lone Star Gas Company of Texas and that the gas company will install a pipeline from this field to connect with its line running from the Petrolia, Texas, field to Fort Worth and Dallas. Each of the Keys wells has a capacity estimated at 50,000,000 cubic feet.

**PENNSYLVANIA—Allegheny County**

The Fort Pitt Bridge Company has completed a test on its own property. It is a light gasser.

**Crosby**

The Nunda Gas Company is now operating its distributing system. The company is a new one.

**Falls Creek**

The United Natural Gas Company recently brought in a large gasser on the A. E. and M. S. Galbraith farm. The gas was found at a depth of 2,720 feet.

**Greene County**

In the Ninevah District the Manufacturers Light & Heat Company's No. 2 Conklin and the Philadelphia Company's test on the William Orndorff farm are both gassers.

On McCourt Run, Center Township, Pa., the Philadelphia Company drilled its test on the N. Thomas farm through the Gordon sand. It is a fair gasser. In the same district, the same company completed a test on the R. Watson farm. A fair gas pressure was developed in the fifth sand.

Near Garrison in Spring Hill Township, the Philadelphia Company drilled its second test on the John Taylor farm into the fifth sand. It is a good gasser in that formation. On Pigeon Run the Peoples Natural Gas Company drilled its test on the Bridgett Moran farm into the salt sand. It is a fair gasser in that formation.

**Harrisburg**

A recent investigation for purposes of conservation of natural resources revealed the fact that 72,000,000 cubic feet of gas were being wasted daily in the hard-coal region of Pennsylvania. Governor Brumbaugh has interested himself in the matter and is urging that organizations in the region offer a reward for a practical suggestion as to how this gas may be utilized.

**Sacket**

The new pump station of the Pennsylvania Gas Company near Sacket, is nearing completion. The station will be one of the finest in this section when finished. All of the gas obtained in the Bear Creek region in Elk County by the Pennsylvania Gas Company will be handled through this new station.

**Warren**

A building is being fitted up in this city by the Pennsylvania Gas Company to serve as a repair station and as a shop for pipefitting.

**Washington County**

In East Finley Township, located three-fourths of a mile southwest of the old Dague farm producer, the Natural Gas Company of West Virginia has completed a test on the Jesse Montgomery farm. It is a light gasser in the 50-foot sand.

**WEST VIRGINIA—Doddridge County**

On Nutters Fork, Grant District, the Carter Oil Company's second test on the Joseph Freeman farm is a gasser in the Big Injun sand.

**Gilmer County**

On Brush Run, Troy District, the Hope Natural Gas Company developed a light gas pressure in the Big Injun sand at a test on the William Cole farm.

On Beeson Run, Clay District, the Philadelphia Company drilled its No. 3 on the William H. Minnear 98 acres, through the Big Injun sand. It is a light gasser in that formation. On Buzzards Run, in the same district, the same company's test on the James Wilson farm is a gasser in the same formation.

On Ragens Run, McClellan district, the Hope Natural Gas Company completed through the Big Injun sand No.

...e J. E. Bates farm. The location is [illegible] feet ...east of No. 1, on the same farm and is a light ...

...ner's Creek, Center District, the Hope Natural ... gas's test on the C. N. Snodgrass farm is a ... gasser in the Big Injun sand.

...ville district the same company completed a ... test on the Heater heirs farm. It is a fair gasser ... formation.

...ng Creek, Ireland District, the Hope Natural ... company has a Big Injun sand gasser at its test on ... W. Wolf farm.

**Harrison County**

...Simpson Creek, Clay District, the Reserve Gas ... drilled a test on the H. L. Thompson farm ... the Big Injun sand. It is a light gasser.

...Davis Run, Simpson district, the same com... has a gasser in the same formation at a test on ... McConnell farm.

...Little Camp Run, Union District, the Reserve Gas ... a test on the Sebastian Hudkins farm is a ... gasser in the Gordon sand.

...Tenmile Creek, Tiger District, the Lumberport ... company's test on the Lewis Haines farm is gasser ... Gordon and Fifth sands.

**Hastings**

...Hastings gas field of the Natural Gas Com... was recently destroyed by fire, involving a loss of ...

**Jackson County**

...The Ohio Valley Gas Corporation's No. 1 Hall ... company completed a test on the Hall heirs farm ... W. Kelly farm. The well is a small gasser in the ... sand.

**Lewis County**

...Freeman Creek District, the Hope Natural ... company's test on the N. W. Wilson farm ... Big Injun sand gasser. ... the Hope Natural Gas Company's ...

**Mason County**

...Pleasant Creek District, the Hope Natural ... company's test on the Lewis Bates farm is a gasser ... Big Injun sand.

...Middle Creek, Lewis District, the Hope Natural ... company's test on the A. Bias farm is a gasser in the Big ... sand.

...Mason County ...

...Sugar Creek District, the Hope Natural ... company's test on the C. N. Snodgrass farm is a ... gasser in the

## NATURAL GAS ASSOCIATION PROCEEDINGS.

VOLUME LX of the Proceedings of the Natural Gas Association of America, containing the report of the 1917 annual convention of the Association has recently come from the press. It is bound in the uniform blue cover adopted by the Association, and as frontispiece appears the picture of Joseph F. Guffey, who was President for the year 1916-17. All of the papers delivered before the 1917 meeting are reprinted in the valume, as well as the "Wrinkles" with illustrations.


# FOR SALE

**350 feet new plain standard weight six inch wrought iron pipe to be used with Dresser Couplings.**

**Immediate shipment can be made.**

**PARIS GAS & ELECTRIC CO.**
**PARIS, KY.**

## CAST IRON GAS PIPE FOR SALE

¾ mile 6" Cast Iron Gas Pipe,
Weight, 29 - lbs. per foot

1½ miles 4" Cast Iron Gas Pipe
Weight, 18 - lbs. per foot

2 miles 3" Cast Iron Gas Pipe
Weight, 13 - lbs. per foot

The above pipe is in first class condition and was used by a small town for natural gas. Contains no deposits, approximately one-fifth has been tapped for ¾ inch connection and can, if necessary, be used in present condition or plugged. Will include specials and drip pots, 12 foot lengths. Above pipe is open to the most rigid inspection.

This pipe is ½ inch thick and is in reality class "B" water pipe.

**W. L. SULLIVAN MACHINERY CO.**
PITTSBURGH - KANSAS

***"Can I Make Gasoline From My Natural Gas?"***

## H. A. FISHER CO.
**NATURAL-GAS GASOLINE ENGINEERS**

**can tell you definitely.** — Their new system of testing the gas at the wells is the best plan yet devised. It is absolutely dependable. It eliminates the "guess work" from the gasoline business.

**Pittsburgh,** (542 Winfield Ave.) **Pennsylvania**

THE FOOS

THE vital difference that makes one engine a better selection than another is the service that it renders over a long period of time. Quality of material, refinement in design, correct engineering and high grade machine shop practice, may not be apparent to the purchaser and yet it is on the Invisible Quality in an engine that life and service depend. It is safe to assume that length of service is the best proof of quality. The probable maximum age for gas engines in America is about 30 years. On a list of 25 to 30 year old engines the name FOOS would appear oftener than all other names combined.

# The Foos Gas Engine Co.

Springfield, Ohio

A

# PORTFOLIO

OF

# NATURAL-GAS AND GASOLINE

# EQUIPMENT

AND

# SUPPLIES

---

SUPPLEMENT TO THE JULY 1917 ISSUE

EXHIBITS AT THE

GAS EXHIBITION

OF THE

Association of Natural Gas Supply Men

Held during the Twelfth Annual Convention
of the Natural Gas Association
of America

AT BUFFALO, N. Y.
MAY 8 TO 12, 1917

NATURAL GAS AND GASOLINE JOURNAL
BUFFALO, N. Y.

# TO THE INDUSTRY.

THOUGH gas were available in great measure, below-ground, of what avail would it be were it not for the perfected facilities ready at hand for constructing derricks for drilling, fishing, casing, capping, pumping, etc., etc.

It has been the function of the Supply Manufacturer and Distributor to provide the vast variety of devices and supplies needful and to improve upon old types, often through valuable assistance rendered by field and station men.

Many types of supplies and equipment were displayed at the recent Gas Exhibition held under the auspices of the Supply Men's Association of the Natural Gas Association of America, at the Association's 1917 convention in Buffalo, N. Y.

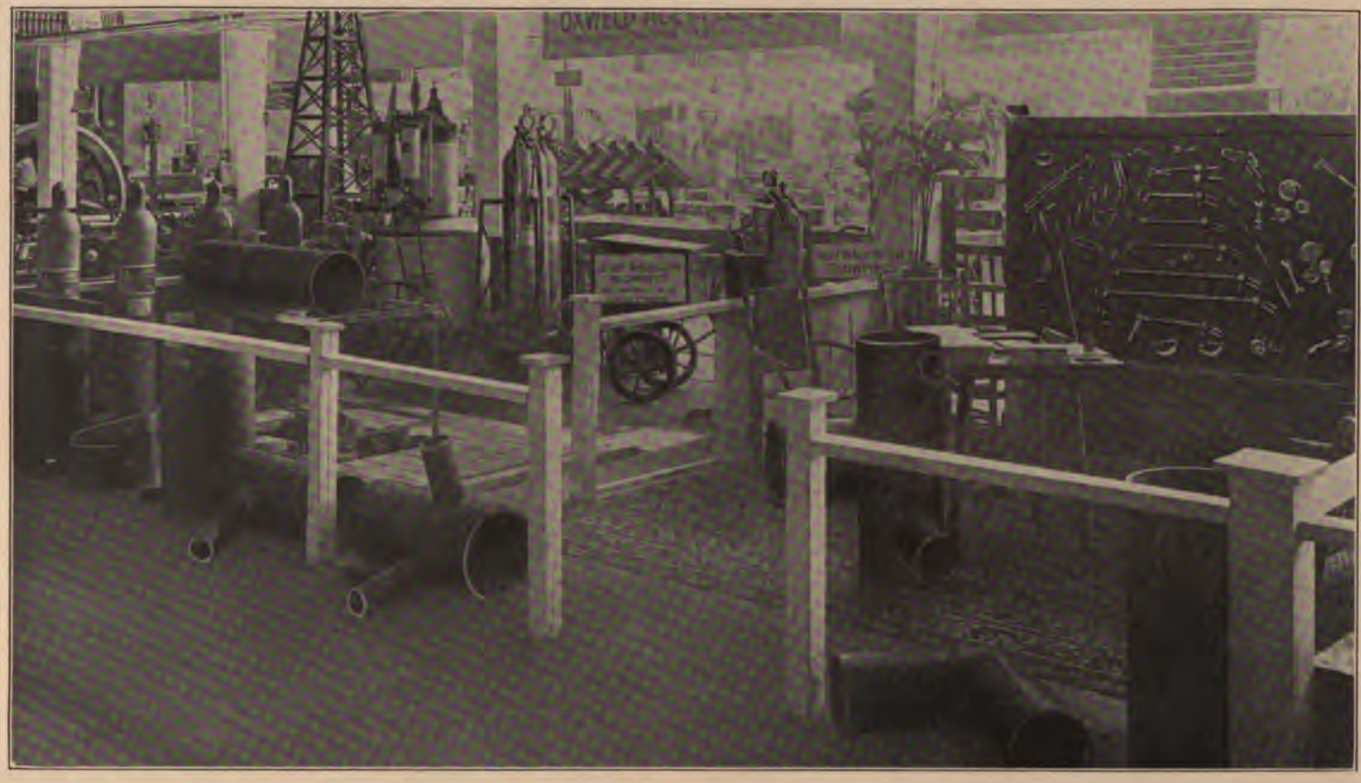
Through the co-operation of various of the exhibiting Supplymen and Manufacturers we are enabled to extend many of these most interesting displays by photographic-process-reproduction, to those who could not attend the convention, and as well to those, as an effective reminder, who were at the meeting, but who by virtue of there being so many articles exhibited, find it now difficult to recall at what respective booths many of the supplies were shown.

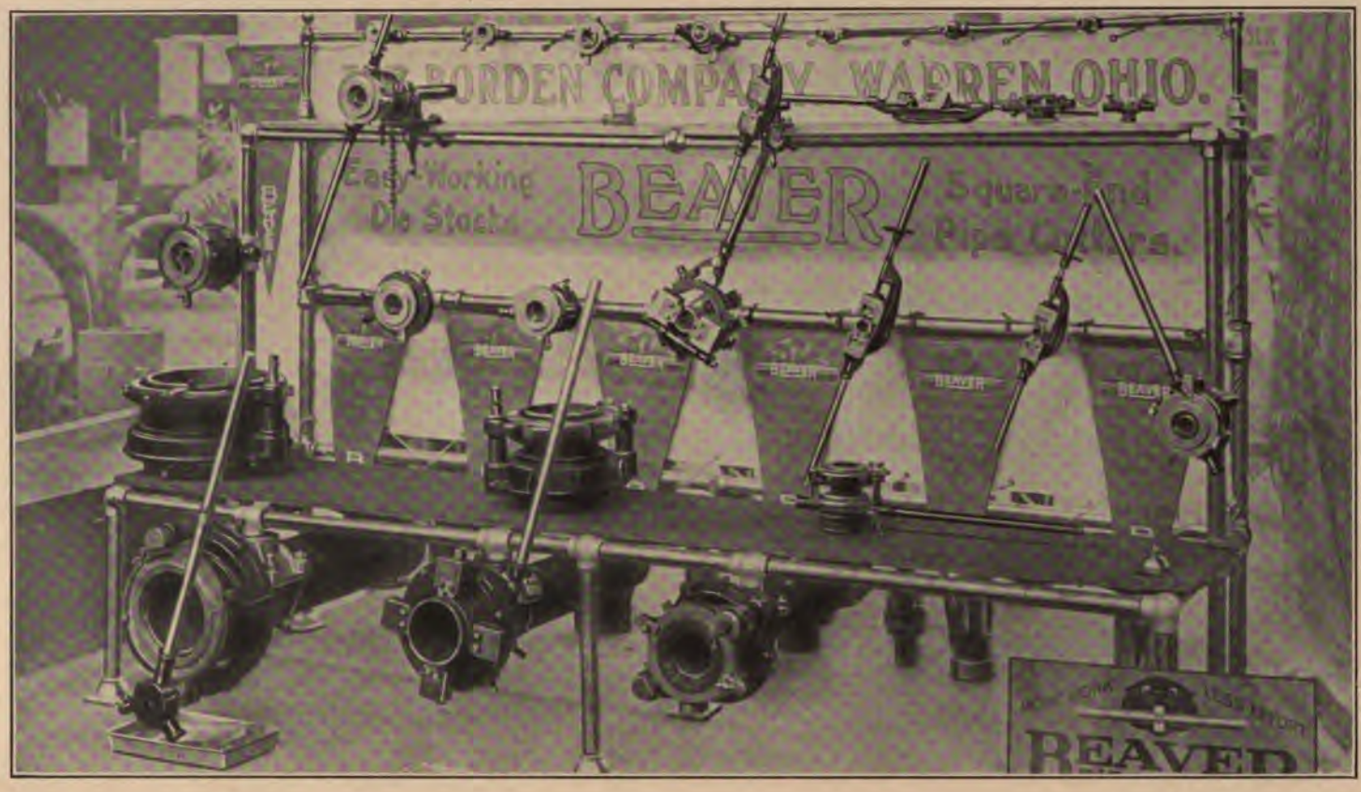
We commend especially these lines of manufactures to the careful attention of contractors, drillers, field-men in general, and managers of companies who will receive this Portfolio of Supplies and Equipment for the natural gas field.

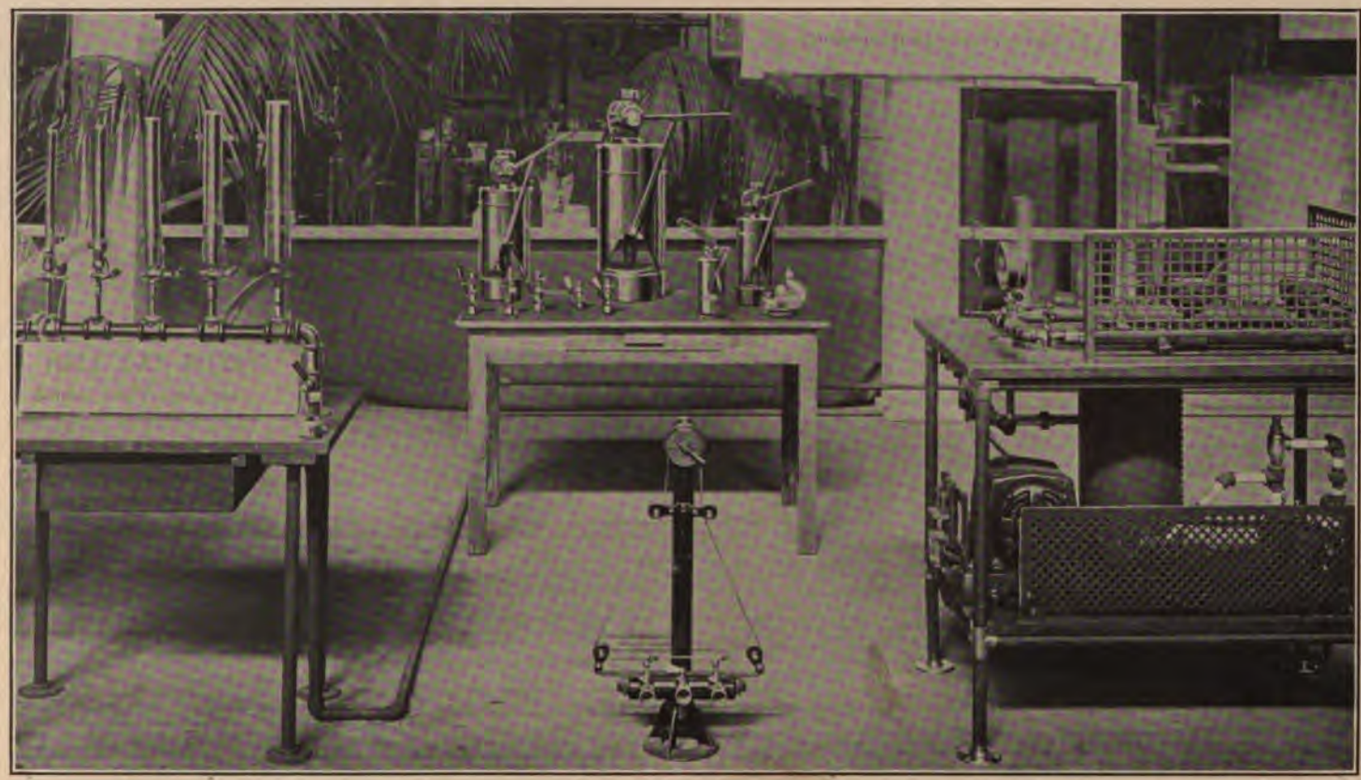
The manufacturers represented are among the most dependable in the United States, and their manufactures may always be counted upon as reliable from the standpoint of materials, workmanship, accuracy, etc.

THE PUBLISHERS.

T




BORDEN COMPANY WARREN OHIO.
BEAVER
BEAVER

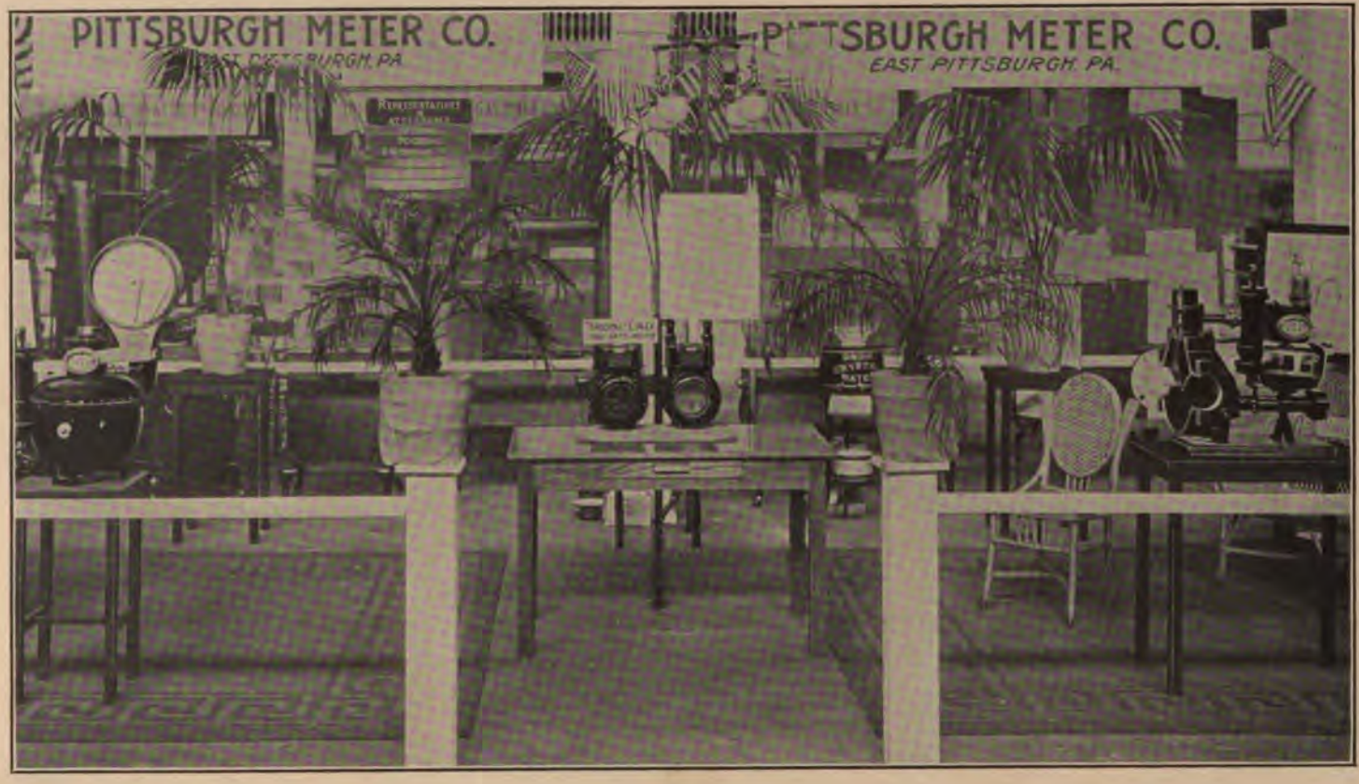


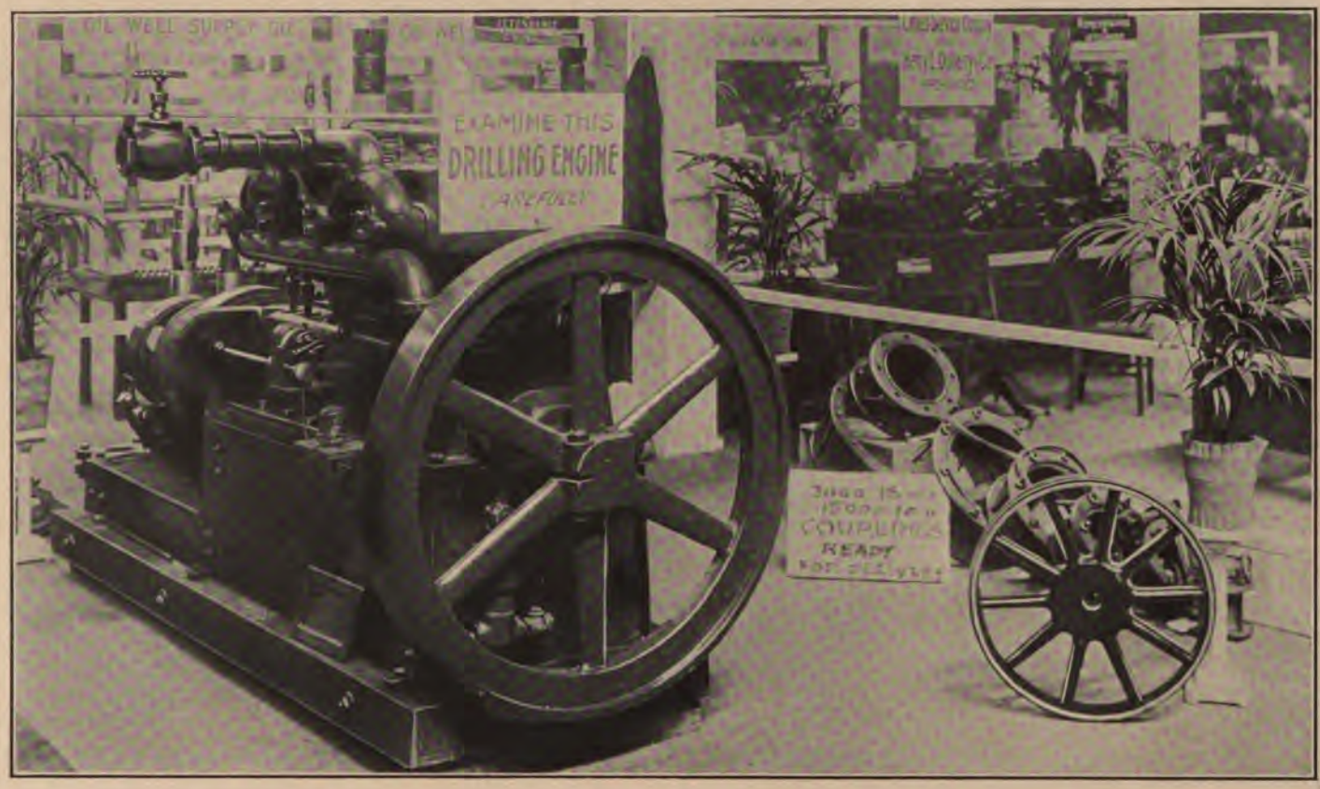
INTERNATIONAL HALE GAS MIXER, Providence, R. I.

EXHIBITING their well known line of mixers, from ⅜" to 8", inclusive, with fixed and adjustable orifice, and their latest important development, the use of the Hale-Gas-Mixer with gas under pressure. This is said to be one of the most important developments in recent years, in the gas industry. It entirely eliminates the necessity for double valve control in high temperature work. The gas is delivered under its own pressure instead of by means of an air blast, the entire operation being controlled by a single valve. It is also possible to change the characteristic flame at will, by means of an air adjustment.

BUILDERS IRON FOUNDRY, PROVIDENCE, R. I.

THE Venturi Gas Meter exhibit by the Builders Iron Foundry consisted of a 2½" x ¼" Venturi Meter Tube, installed in a line from a small electrically driven blower and connected to a Type Q5 Register and U-Tube Manometer. There was also shown one Type M Indicator Recorder, one Barometric Manometer, one Special Planimeter, and one specially designed all steel Needle-Valve for use in high-pressure-gas lines. Because its principle of operation is simple, because it is rugged, furnishes three kinds of information, is easily and inexpensively tested, has a wide range of measuring capacity, is conveniently read, and has proved its practicability in actual service, the Venturi is worthy of every natural gas engineer's investigation. Bulletins 86-B and 109-B sent on request.


PITTSBURGH METER CO.
EAST PITTSBURGH, PA.
PITTSBURGH METER CO.
EAST PITTSBURGH, PA.




CUSTER COUPLING COMPANY, Bradford, Penna.

EXHIBITING a four cylinder, 40 H. P. at 200 R.P.M. Rex Gas or Gasoline Drilling Engine, with reversible clutch, self-oiling throughout.

Operates from the derrick same as steam engine. Gives same motion of tools as from a steam outfit.

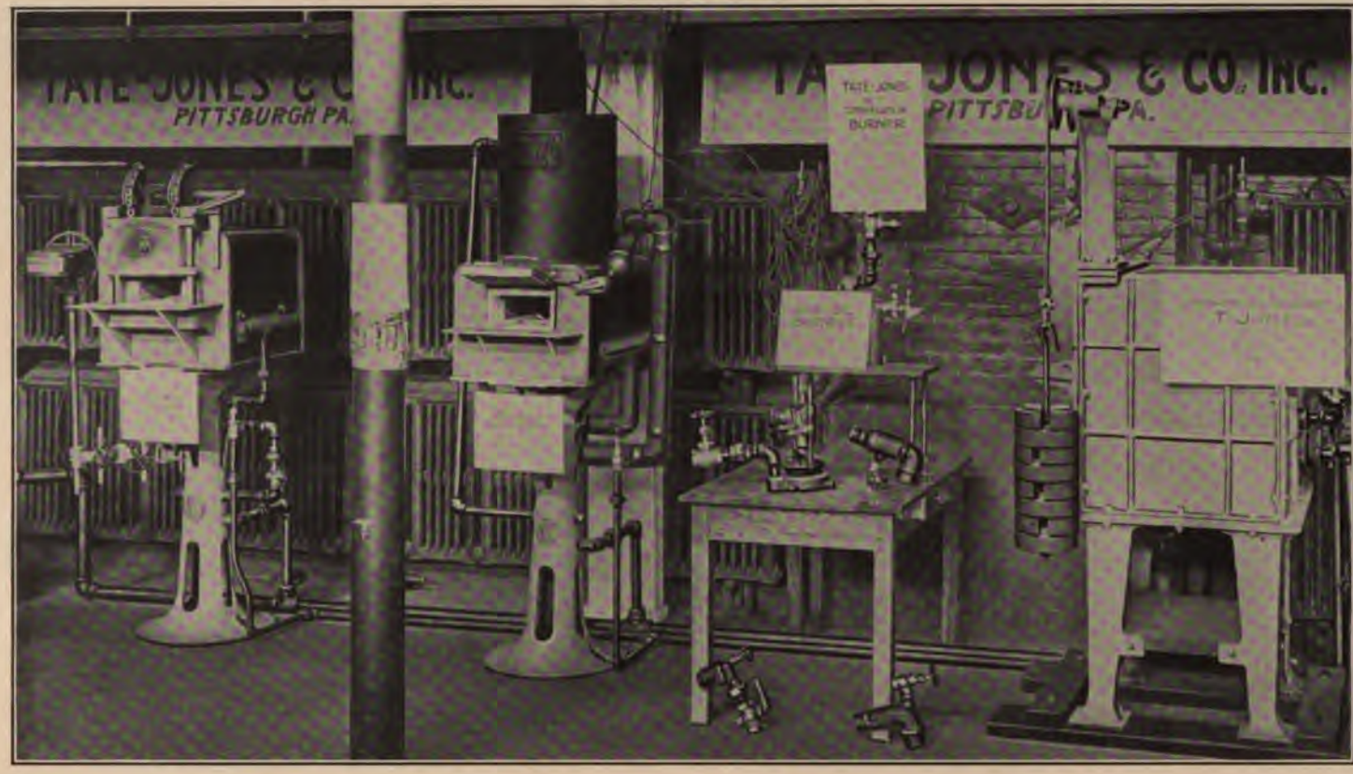
The "Rex" consumes approximately 7000 cu. ft. of gas per twenty-four hour day. A thirty-five barrel tank of water is sufficient for cooling purposes to drill any ordinary well.

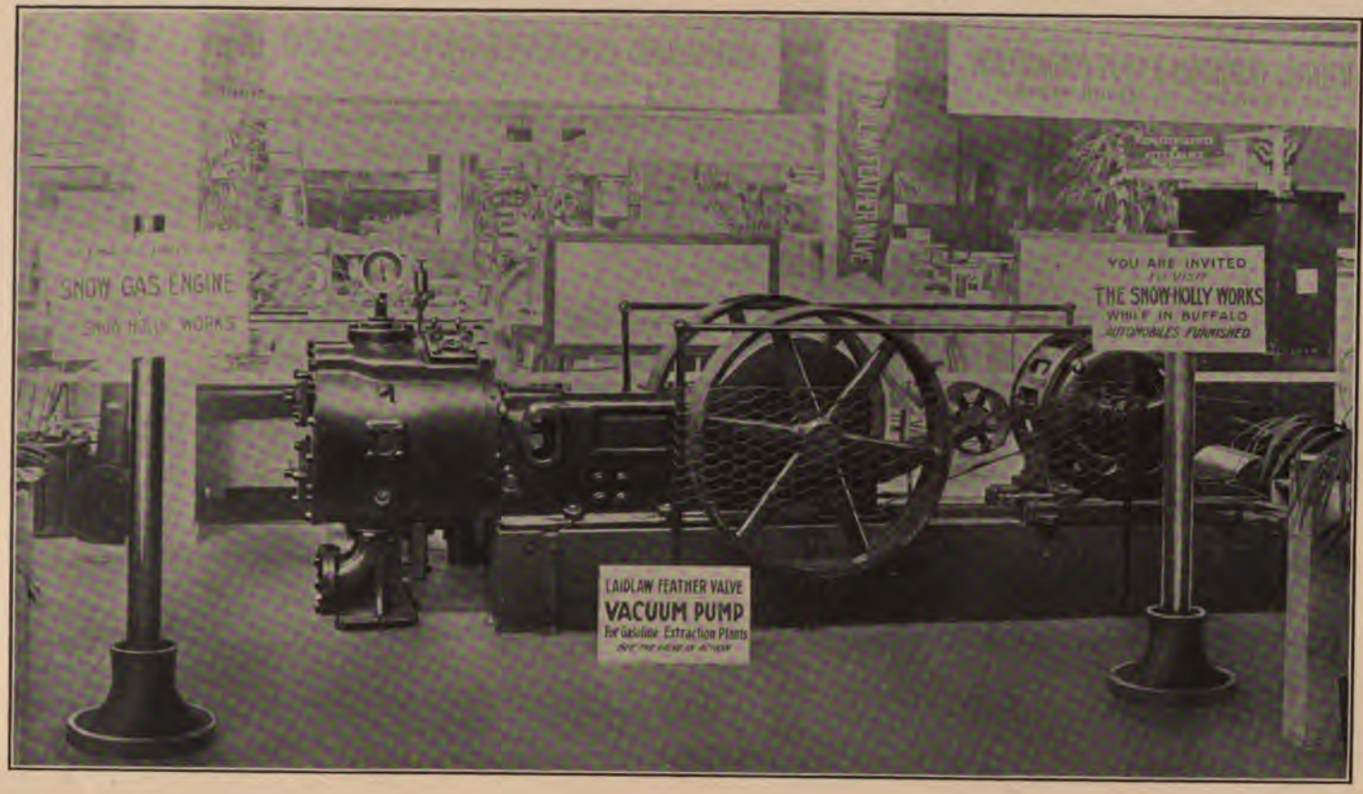
The "Rex" is giving satisfaction wherever used. The United Natural Gas Co. has seven machines; the Central Refining Company, Ohio Oil Company and Indian Refining Company all have one or more in operation.

We make this engine in addition to our regular line of Pipe Couplings.

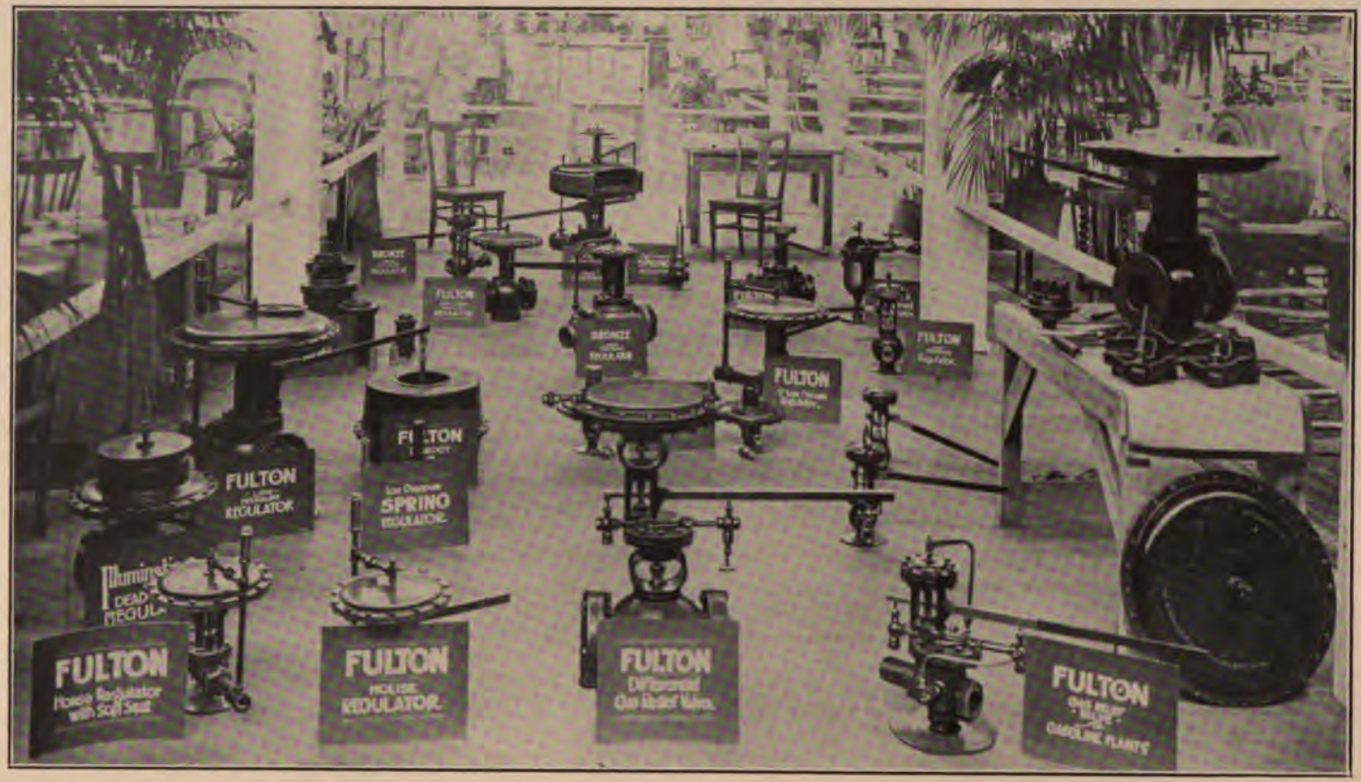
THE SPRAGUE METER COMPANY, Bridgeport, Conn.

THE Sprague Meter Co., exhibited a complete line of cast-iron gas meters. The display meter with glass front, back and top showed a perfect working mechanism. Every gas company should have one of these meters on its sales-floor to demonstrate to consumers the operation of a meter. The "Sprague" is the pioneer cast iron meter that has proven successful in service in artificial, natural and mixed gas, and this is a point well worth careful consideration by all gas men.


PITTSBURGH PA.
JONES & CO. INC.
PITTSBURGH PA.


SNOW GAS ENGINE
YOU ARE INVITED
THE SNOW-HOLLY WORKS
WHILE IN BUFFALO
AUTOMOBILES FURNISHED
LAIDLAW FEATHER VALVE
VACUUM PUMP
For Gasoline Extraction Plants

A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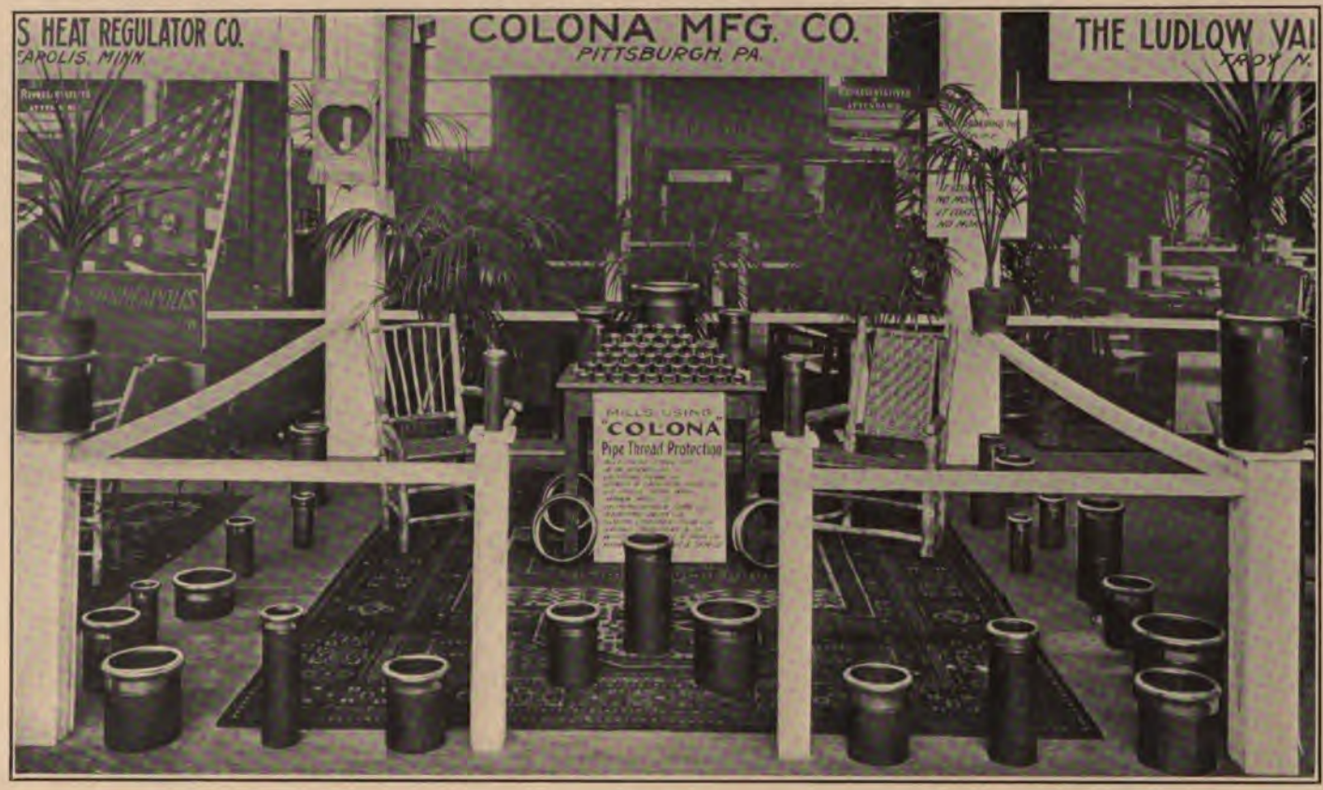
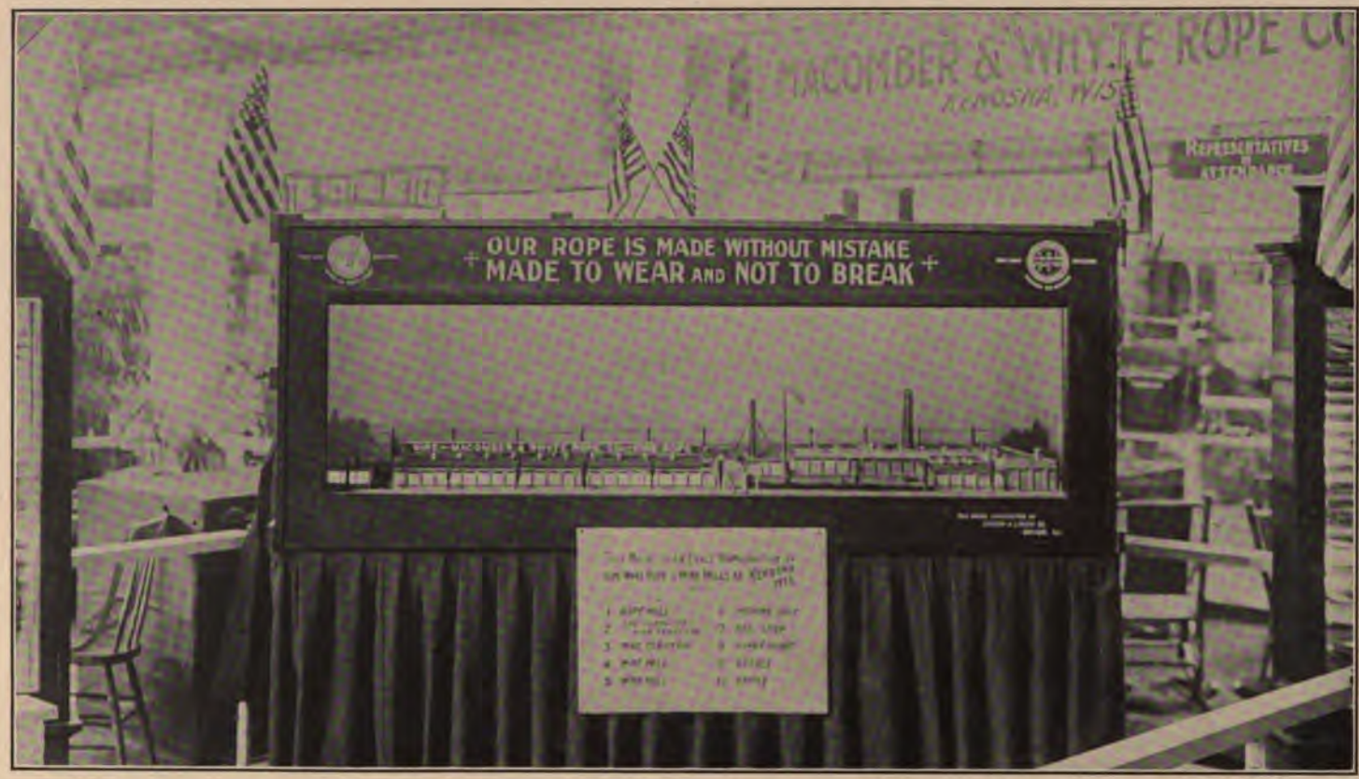

S HEAT REGULATOR CO.
ROLIS, MINN.
COLONA MFG. CO.
PITTSBURGH, PA.
THE LUDLOW VAI
TROY N.
MILLS USING
"COLONA"
Pipe Thread Protection

COLONY MANUFACTURING COMPANY

THIS




MACOMBER & WHYTE ROPE CO., Chicago, Ill.

THIS is the home of the famous MacWhyte Wire Drilling Cables, it being a model of the factory buildings located at Kenosha, Wis. This model was bulit to scale. At the works of this company is made every character, grade and construction of wire rope for every purpose. Drilling-Cables, Sand-Lines, Casing and Tubing Lines, Dead-Lines, in fact every kind of rope used in or about oil and gas wells is specialized in by this Company. Branches are maintained at Chicago, Pittsburgh, and Tulsa. Agents in every oil and gas field.

CLEVELAND GAS METER COMPANY, Cleveland, Ohio.

THIS exhibit comprised a new Cast-iron Meter, so designed that one eccentric-movement-valve controls the gas from four measuring chambers. The mechanism of this meter is so arranged that it can be taken apart and inspected in a few minutes. The diaphragms are of the pleated type, the same as used in the Tin Meter, and are easily removed for inspection. There was also exhibited a full line of Tin Gas Meters, both the "A" and "B" type.

## HAYS MANUFACTURING COMPANY,

[illegible]

THE [illegible] the manufacture of [illegible] including the Screw Cock, Meter Cocks, Plug, Pillar Post, Lever, Gate, Machine Moulded Hose Pipe Union, Screw Boxes and Vent Rod [illegible] Bibb, Basin [illegible]

[illegible] the case of Brass goods great care is exercised to see that patterns are well designed for the purpose [illegible] that castings are free from blow holes, of the right mixture for [illegible] Each and every [illegible] gauged for size and accuracy, and therefore when shipped from our factory we know [illegible]

We [illegible]

[illegible] Machine [illegible] are constructed to [illegible] of handling [illegible] [illegible] and make all [illegible]

[illegible] free trial.

[illegible] are constructed to [illegible] [illegible] to meet [illegible] with [illegible] be secured attached to [illegible] [illegible] [illegible] [illegible] when opening [illegible]

[illegible] [illegible] [illegible] [

MUNCIE, INDIANA
HAUSFELD
BRASS FURNACE
2 PREMIX BURNER
BELLEVUE
FURNACE
2 PREMIX BURNER
1 PREMIX BURNER
1-0 PREMIX BURNER

MANON PREMIX BURNER COMPANY.

[illegible]

ENDED [illegible]

No. [illegible] for [illegible] natural gas per hour.

No. [illegible] for [illegible] natural gas per hour.

No. [illegible] for [illegible] natural gas per hour.

No. [illegible] for [illegible] natural gas per hour.

[illegible] No. [illegible] Burners [illegible] Furnace [illegible] quite evidently [illegible] [illegible] are readily [illegible] with Manon Premix Burners. There was also shown [illegible] Furnace [illegible] Furnace [illegible] were heated by the Manon [illegible] [illegible] that the Premix might be readily [illegible] down to [illegible]

[illegible] Furnace [illegible] Hundred Furnace [illegible] Save several [illegible] the Premix [illegible]

[illegible] Premix Burners is so broad as to make it impossible to here enumerate the [illegible] Manon [illegible] regarding any type of burner needs, we will make reply based upon engineering [illegible]

THE NATIONAL SUPPLY COMPANY

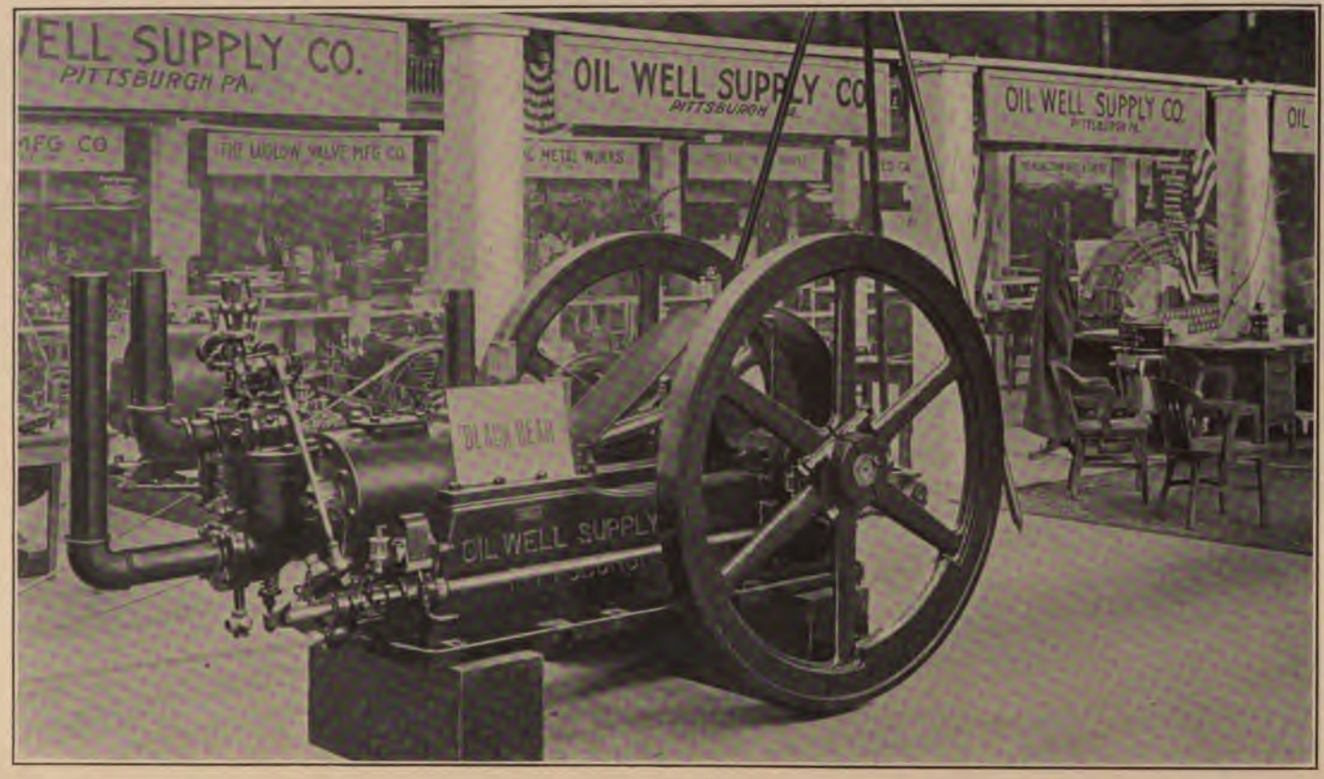
And Allied Companies.

Toledo, Ohio—Pittsburgh, Pa.

THE exhibit included a working model of a National portable drilling rig in operation, also extra heavy fittings, main line flange unions, saddles, and a thoroughly complete miniature pumping well outfit, including gas engine, derrick, etc. This latter loaned by the Manufacturers Light & Heat Company.

Added to the foregoing were samples of the manufactures of the Dayton Pipe Coupling Company that has recently been acquired by the National Supply Company. Dayton couplings and sleeves were exhibited.

THE NATIONAL SUPPLY CO
THE NATIONAL SUPPLY CO


ELL SUPPLY CO.
PITTSBURGH PA.
OIL WELL SUPPLY CO.
PITTSBURGH PA.
OIL WELL SUPPLY CO.
PITTSBURGH PA.
OIL
MFG CO.
THE LUDLOW VALVE MFG CO.
METEL WORKS
OIL WELL SUPPLY

OIL WELL SUPPLY CO.
PITTSBURGH PA.
"OILWELL"
MUD HOG

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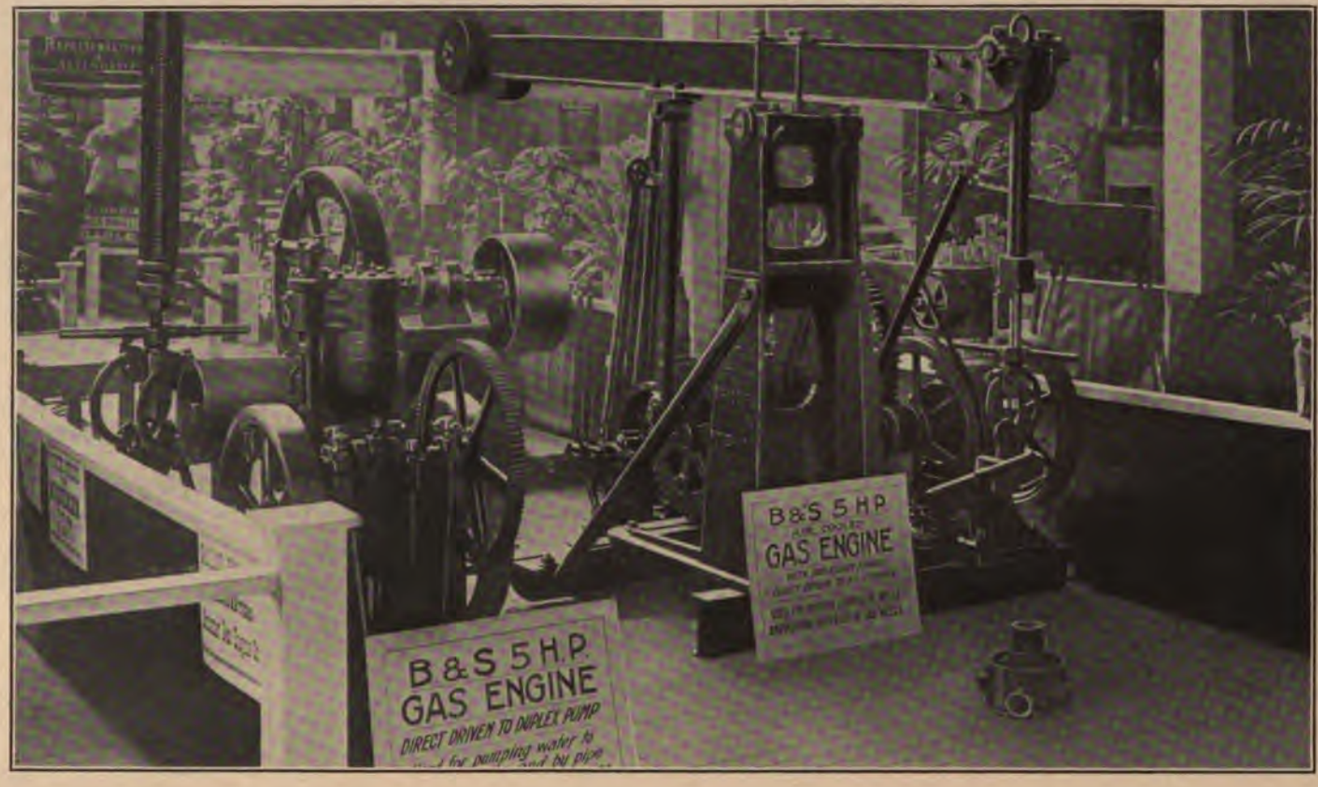
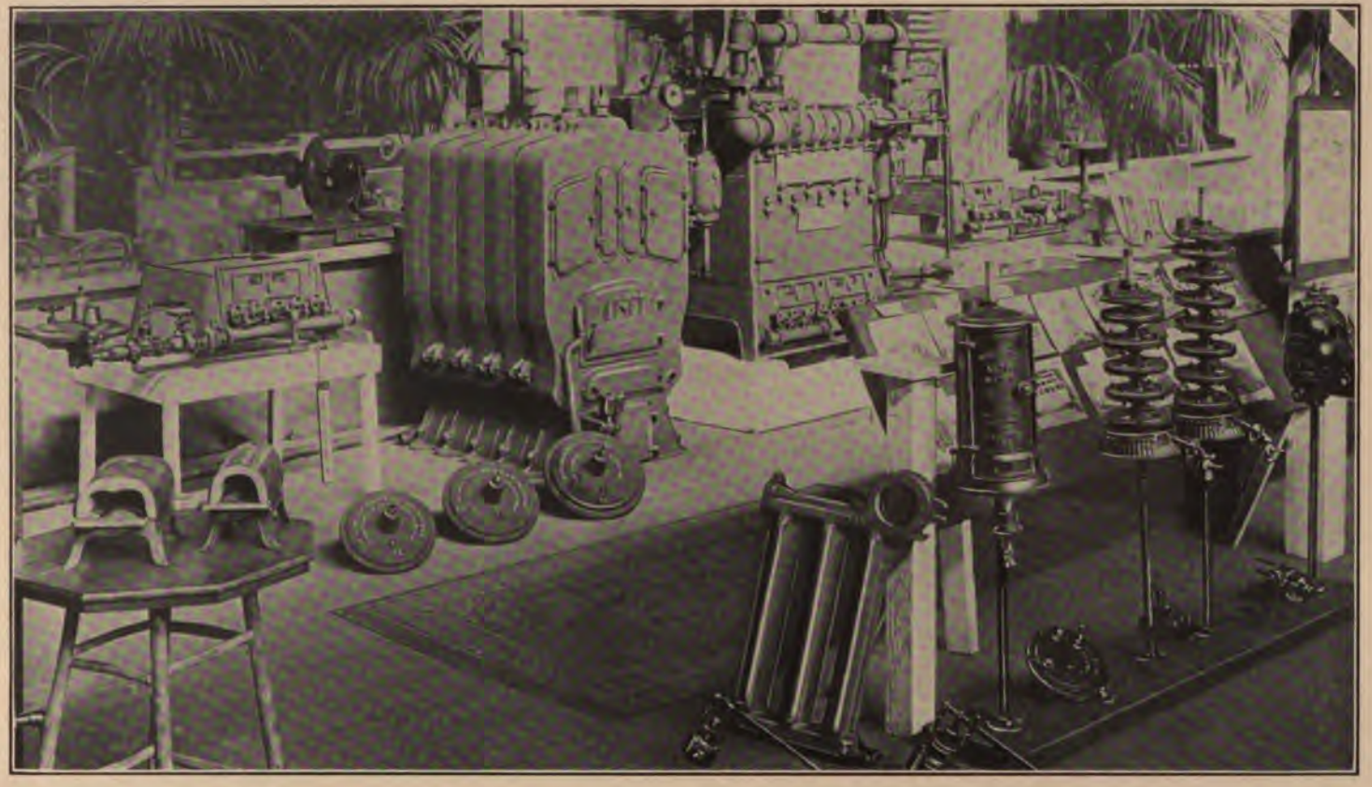

B&S 5 H.P.
GAS ENGINE
DIRECT DRIVEN TO DUPLEX PUMP
B&S 5 H.P.
GAS ENGINE

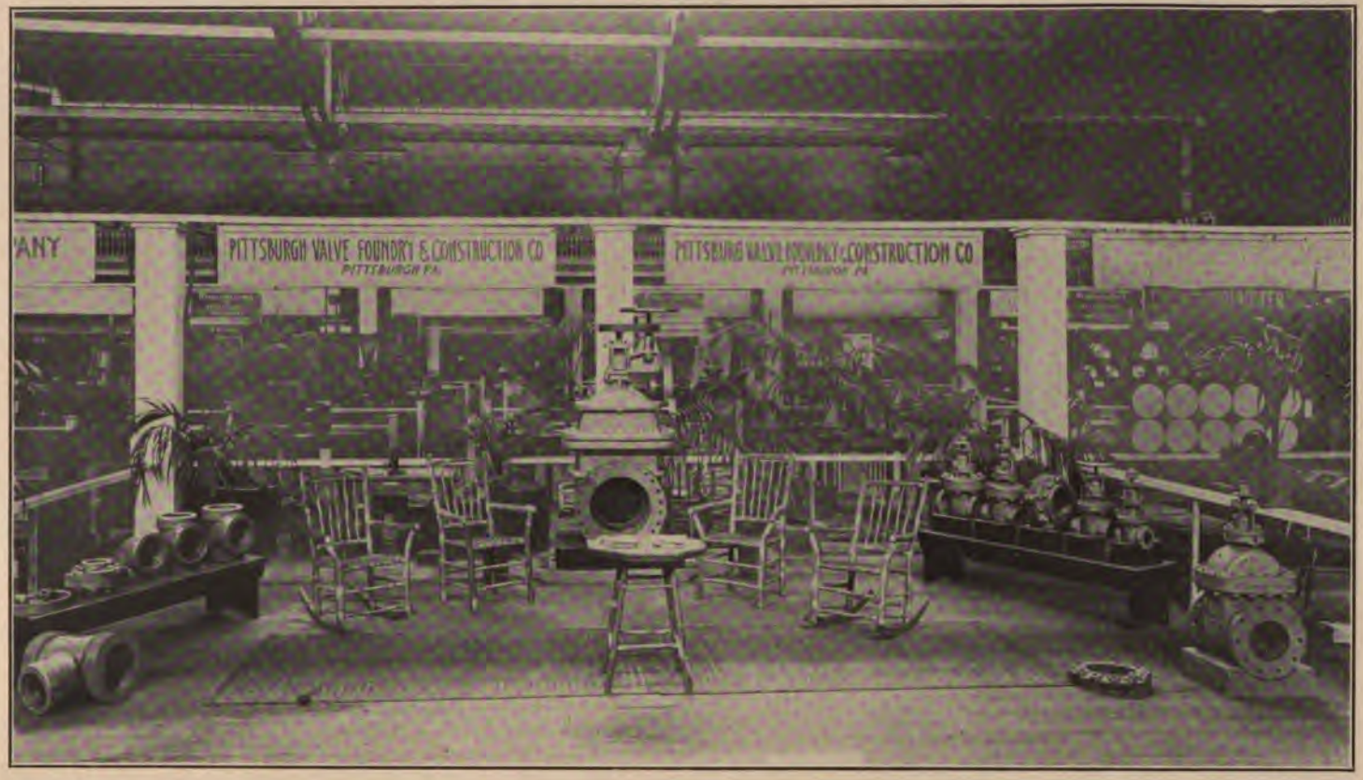


THE BRYANT HEATER & MFG. CO., Cleveland, Ohio.

EXHIBIT includes a 5-section boiler, of the type erected from front to rear and a two-unit gas boiler in the background, with bases for this latter type displayed to the extreme right and left in the picture. These boilers may be extended by adding sections, to meet any requirement. On the table are Soldering Iron Heaters and on the floor are Bryant Gas Regulators. In the foreground is a section such as is used in building-up the sectional gas boiler in the background. Bryant tank-water-heaters are on standards in the foreground. Maximum heat-unit efficiency; minimum heat-loss in the "Bryant System" of heating, is the record with any fuel employed.

METRIC METAL WORKS
ERIE PA.
METRIC METAL WC
ERIE PA.
20 B
IRONCASE
METER

B


PITTSBURGH VALVE FOUNDRY & CONSTRUCTION CO
PITTSBURGH PA.
PITTSBURG VALVE FOUNDRY & CONSTRUCTION CO

# HOOKS AND CLIPS

ARE

## Time Savers Hence Money Savers

**"The Clincher"**

Something new in Pipe Couplers-- as Handy as a Pocket in a Shirt.

Unnecessary to remove nuts-- Hook on and tighten up. It's like hitching up a fire engine team.

NEW FACTORY
NEW METHODS

NEW OFFICE
NEW LOCATION

Write for Information to

**THE HAMMON COUPLER CO.,** Mt. Vernon, O.

# HELME & McILHENNY

1339-49 Cherry Street PHILADELPHIA, PA., U. S. A.

The "A" Meter---- heavily built for high capacity. Especially successful in natural gas service.

Prepayment Meters to sell gas at any rate per thousand cubic feet.

Strong and simple mechanism.

## GAS METERS

**Prompt Shipments**

**Correspondence Invited**

# THE "DAYTON" COUPLING

Tight Joints . . .

Perfect Expansion

Economical

Durable . .

Couplings
Clamps
Sleeves
Split Sleeves

ALL-STEEL COUPLING

Saddles
Tees
Elbows
Crosses

## THE DAYTON PIPE COUPLING CO.

DAYTON, OHIO, U. S. A.

CLEVELAND
CAST IRON GAS METER

SIZE No. 2

## Cleveland Gas Meter Co.

2170-2180 EAST 65th STREET
CLEVELAND, OHIO

MANUFACTURERS OF

# CAST IRON CASE METERS
# EXTRA HEAVY TIN METERS

FOR NATURAL AND ARTIFICIAL GAS

# PREPAYMENT METERS

SEND FOR CATALOGUE

Cont. of Natural Gas Journal
INDEXED
(Tech.)

# NATURAL GAS AND GASOLINE JOURNAL

VHY

VOL. 11 FEBRUARY 1917 No. 2


## COOPER GAS ENGINES

The **Berea, Ohio, Station** of **The Berea Pipe Line Company,** — one of the most modern and up-to-date gas compressing stations in the entire country. It contains two 480 B. H. P. **Cooper** Single Tandem Gas Engine Driven Compressor Units.

**THE C. & G. COOPER CO., Mount Vernon, Ohio**


PUBLISHED BY THE PERIODICALS PUBLISHING COMPANY
Central Office and Publishing Plant, Buffalo, New York

# Upkeep Means Nothing To Gas Companies Using---

# IRONCLAD

## THE 100% METER

ASIDE from its unexcelled accuracy at both minimum and maximum capacity and pressure, its mechanism is designed to combine strength with simplicity; —its case is designed for its greatest protection to its mechanism and for maximum durability.

## That is why---

***"Ironclad" Maintenance is Lowest---None Excepted.***

## Pittsburgh Meter Company

**General Office and Works: EAST PITTSBURGH, PA.**

| NEW YORK | CHICAGO | KANSAS CITY | COLUMBIA, S. C. | LOS ANGELES | SEATTLE |
|---|---|---|---|---|---|
| 149 Broadway | 5 So. Wabash Ave. | 6 W. 10th St. | 1433 Main St. | 631 So. Spring St. | 802 Madison Street |

*Also manufacturers of Keystone and Eureka Water Meters, Positive and Proportional Gas Meters for Any Pressure, and Meter Provers*

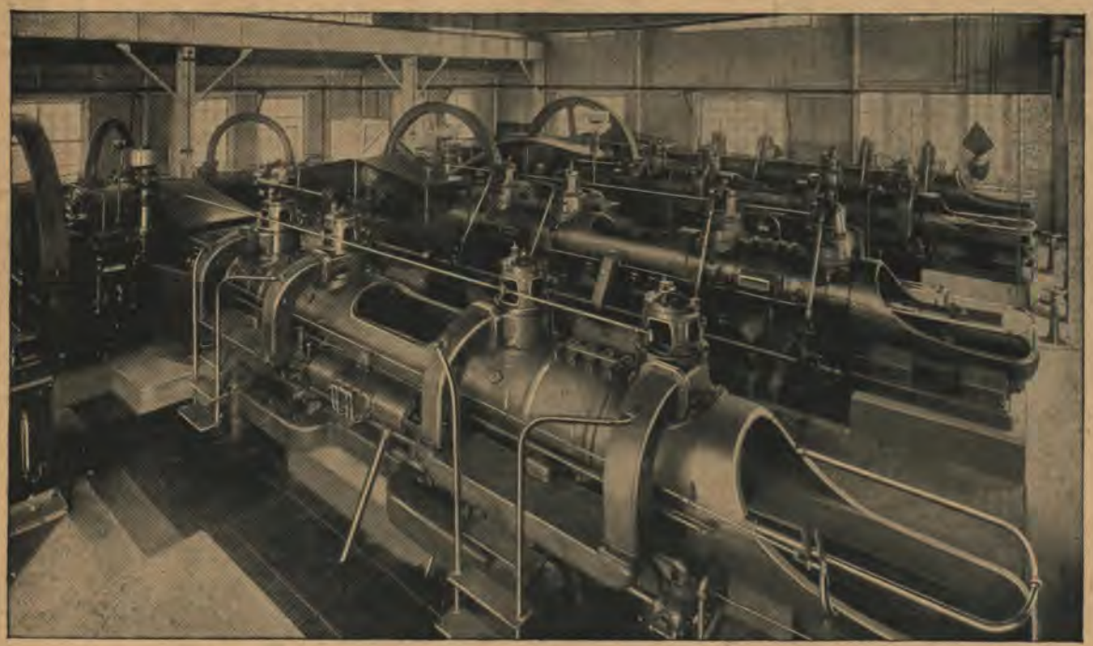
MAR 27 1917

INDEXED

# NATURAL GAS AND GASOLINE JOURNAL

VOL. 11 MARCH 1917 NO. 3


## COOPER GAS ENGINES



The **Mansfield, Ohio, Station** of **The Medina Gas & Fuel Company,** which contains two 480 B. H. P. Single Tandem and One 960 B. H. P. Twin Tandem Compressor Units.

**THIRD REPEAT ORDER just received from this company for three 480 B. H. P. Single Tandem Engines, to be duplicates of the above.**

**THE C. & G. COOPER CO., Mount Vernon, Ohio**


PUBLISHED BY THE PERIODICALS PUBLISHING COMPANY
Central Office and Publishing Plant, Buffalo, New York

# It Speaks For Itself

# IRONCLAD

## THE 100% METER

Approximately

## 200,000

"Ironclad" Cast Iron, Dry Gas Meters, now in daily service, are demonstrating to the satisfaction of hundreds of gas companies their superior accuracy under every condition of service, and what is more they are proving that —

***"Ironclad" Maintenance is Lowest---None Excepted.***

## Pittsburgh Meter Company

**General Office and Works: EAST PITTSBURGH, PA.**

| NEW YORK | CHICAGO | KANSAS CITY | COLUMBIA, S. C. | LOS ANGELES | SEATTLE |
|---|---|---|---|---|---|
| 149 Broadway | 5 So. Wabash Ave. | 6 W. 10th St. | 1433 Main St. | 631 So. Spring St. | 802 Madison Street |

*Also manufacturers of Keystone and Eureka Water Meters, Positive and Proportional Gas Meters for Any Pressure, and Meter Provers*

21 1917

# NATURAL GAS AND GASOLINE JOURNAL

VOL. 11 APRIL 1917 NO. 4


## COOPER GAS ENGINES

1300 B. H. P. Twin Tandem Cooper Gas Engine in the **Pavonia, Ohio, Compressor Station** of **The Logan Gas & Fuel Company**

***Another Satisfied Customer***

After operating the above Engine continuously for three years, the Logan Company has just placed an order with us for an exact duplicate of this Unit, to go in the same Station, also two 480 B. H. P. Single Tandem Gas Engines for another Station.

**THE C. & G. COOPER CO., Mount Vernon, Ohio**


PUBLISHED BY THE PERIODICALS PUBLISHING COMPANY
Central Office and Publishing Plant, Buffalo, New York

Equalize the increasing cost of productio
by a full return on the gas you deliver, b
installing—

# IRONCLAD

## THE 100% METER

It has no equal for capacity, slight absorption of pressure sensitiveness and durability.

It measures accurately natural gas at low or high pressures and artificial gas at both small and large flows.

It is the most economical gas meter on the market—

*because—*

***"Ironclad" Maintenance is Lowest---None Excepted.***

## Pittsburgh Meter Company

**General Office and Works: EAST PITTSBURGH, PA.**

| NEW YORK | CHICAGO | KANSAS CITY | COLUMBIA, S. C. | LOS ANGELES | SEATTL |
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| 149 Broadway | 5 So. Wabash Ave. | 6 W. 10th St. | 1433 Main St. | 631 So. Spring St. | 802 Madison |

*Also manufacturers of Keystone and Eureka Water Meters, Positive and Proportional Gas Meters for Any Pressure, and Meter Provers*

Tech.
INDEXED

# NATURAL GAS AND GASOLINE JOURNAL

VOL. 11 MAY 1917 NO. 5


## COOPER GAS ENGINES

**STANDARD FOR COMPRESSOR SERVICE**

Branchland, (West Va.) Station of the Columbia Gas & Electric Co.

***Partial List of Users***

| | |
|---|---|
| United Fuel Gas Company - | (West Va.) |
| Columbia Gas & Electric Co., | " |
| Hope Natural Gas Company, | " |
| Wheeling Natural Gas Co. - | " |
| Ohio Fuel Supply Company - | (Ohio) |
| Logan Natural Gas & Fuel Co., | " |
| Medina Gas & Fuel Company - | " |
| Berea Pipe Line Company - - | " |
| Manufacturers Gas Company - | (Penna.) |
| The B. B. Stroud Company - - | " |
| Clarendon Gasoline Company, | " |
| Midway Gas Company - - - | (Calif.) |
| Pinal Dome Oil Company - - | " |
| Shell Company of California - | " |
| Wichita Pipe Line Company - | (Okla.) |
| American Zinc, Lead & Smelting Company, | (Kans.) |
| Detroit City Gas Company - - | (Mich.) |
| Ontario Gas Company - - - | (Canada) |

**THE C. & G. COOPER CO., Mount Vernon, Ohio**


PUBLISHED BY THE PERIODICALS PUBLISHING COMPANY
Central Office and Publishing Plant, Buffalo, New York

# IRONCLAD

## THE 100% METER

# Is An Agent of Peace

It has nothing to do with gas attacks.

Its mission is to maintain friendly relations between the consumer and the gas company. ---Its years of success in this peaceful endeavor is due to unfailing accuracy in registering the gas delivered in either large or small volumes, or at high or low pressure.

This service is renderd the gas company at the least cost, because—

***"Ironclad" Maintenance is Lowest---None Excepted.***

## Pittsburgh Meter Company

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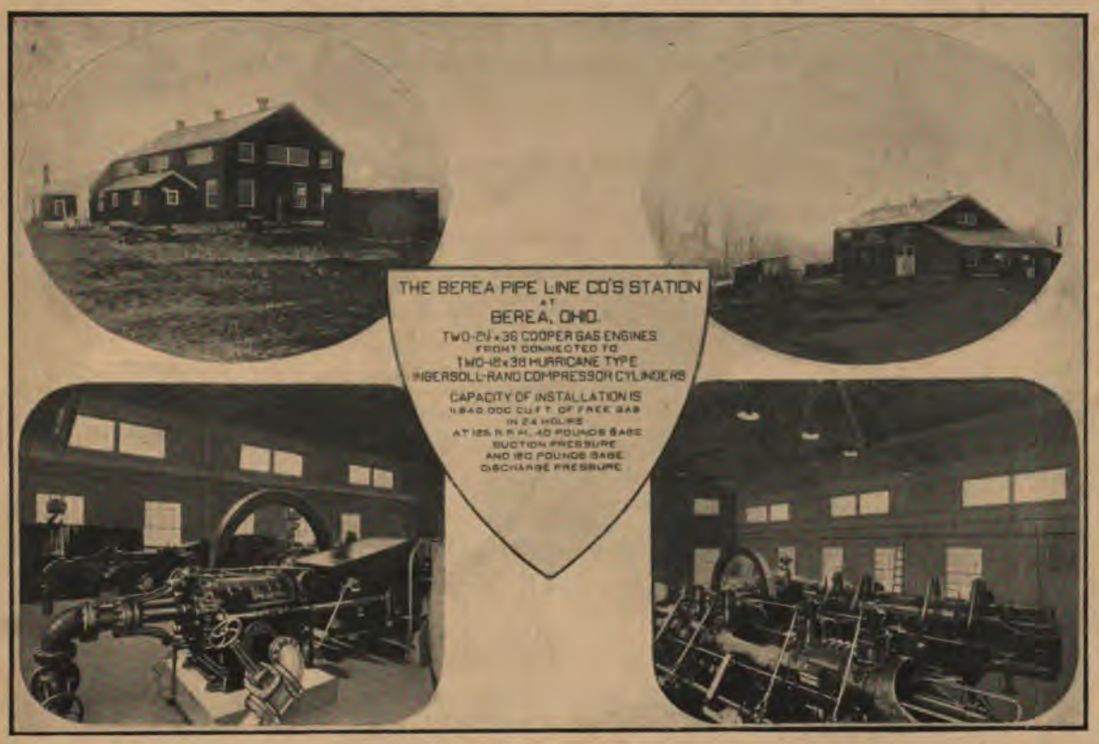
Tech.
20'17

# NATURAL GAS AND GASOLINE JOURNAL

VOL. 11 JUNE 1917 NO. 6


## COOPER GAS ENGINES

**STANDARD FOR COMPRESSOR WORK**




**Our Compressor Station Engineering Department at Your Service**

**THE C. & G. COOPER CO., Mount Vernon, Ohio**


PUBLISHED BY THE PERIODICALS PUBLISHING COMPANY
Central Office and Publishing Plant, Buffalo, New York

# IRONCLAD

## THE 100% METER

## Give This The Once Over

The superintendent of one of the largest gas companies said:

"During the zero cold snap last January and February our pressure dropped in one district to as low as 2 ounces. You can imagine the complaints of gas shortage we received from our consumers, but it was interesting to note, upon checking the matter over, that while there were many various makes of meters installed in this district of 6000 consumers, we did not have any complaints from consumers being supplied through **'Ironclad'** meters."

## Pittsburgh Meter Company

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JUL 31.

INDEXED

# NATURAL GAS AND GASOLINE JOURNAL

VOL. 11 JULY 1917 NO. 7


## COOPER GAS ENGINES
### FOR COMPRESSOR SERVICE

Will you require additional Compressor Units for 1918?

To insure satisfactory deliveries
ORDERS MUST BE PLACED EARLY.

Write us NOW about your next season's requirements.

*We furnish complete Direct-driven Compressor Units in sizes from 150 to 1300 h. p.*

## THE C. & G. COOPER CO.

**Engine Builders and Compressor Station Engineers**

**MT. VERNON, OHIO**


PUBLISHED BY THE PERIODICALS PUBLISHING COMPANY
Central Office and Publishing Plant, Buffalo, New York

# SOMETHING NEW!

# Westinghouse

## Positive and Proportional GAS METERS

with

## Self-Lubricating, Automatic Overflow

For the Measurement of

## Casing-Head Gas

## Pittsburgh Meter Company

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# NATURAL GAS AND GASOLINE JOURNAL

VOL. 11 AUGUST 1917 No. 8


## COOPER GAS ENGINES
FOR COMPRESSOR SERVICE

**Bigheart, Oklahoma, Compressor Station** of the **Wichita Pipe Line Company** containing Four (4) 970 B. H. P. Twin Tandem Cooper Gas Engines, front connected to Compressor Cylinders.

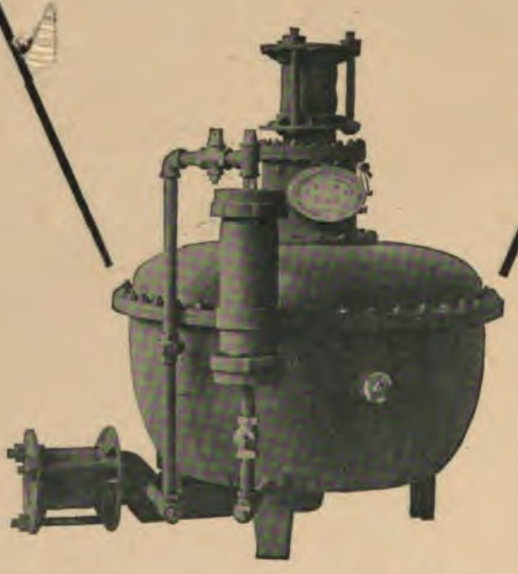
Three of these Engines were installed in October 1913 and the fourth, a REPEAT ORDER, was installed in October 1916.

**THE C. & G. COOPER CO.,** **Mount Vernon, Ohio**


PUBLISHED BY THE PERIODICALS PUBLISHING COMPANY
Central Office and Publishing Plant, Buffalo, New York

# SOMETHING NEW!

## Westinghouse Positive and Proportional Gas Meters with Self-Lubricating Automatic Overflow, for the Measurement of Casing-Head Gas



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*Also manufacturers of "Ironclad" Dry Gas Meters, Proportional Gas Meters for Any Pressure and Meter Provers, — and "Keystone" and "Eureka" Water Meters.*

INDEXED

# NATURAL GAS AND GASOLINE JOURNAL

VOL. 11 SEPTEMBER 1917 NO. 9


## COOPER GAS ENGINES

FOR COMPRESSOR SERVICE

Twin Tandem Cooper Gas Engine front connected to Gas Compressor Cylinders.

We are now building Eleven 970 Brake Horse Power Twin Tandem Units of the above type for one Company, which concern has been a large user of Cooper Gas Engines for a number of years.

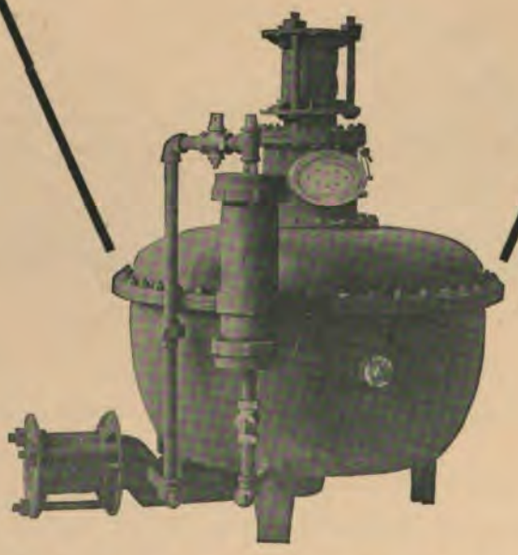
*Write us NOW about your next year's requirements.*

**THE C. & G. COOPER CO., Mount Vernon, Ohio**


PUBLISHED BY THE PERIODICALS PUBLISHING COMPANY
Central Office and Publishing Plant, Buffalo, New York

# SOMETHING NEW!

## Westinghouse Positive and Proportional Gas Meters with Self-Lubricating Automatic Overflow, for the Measurement of Casing-Head Gas



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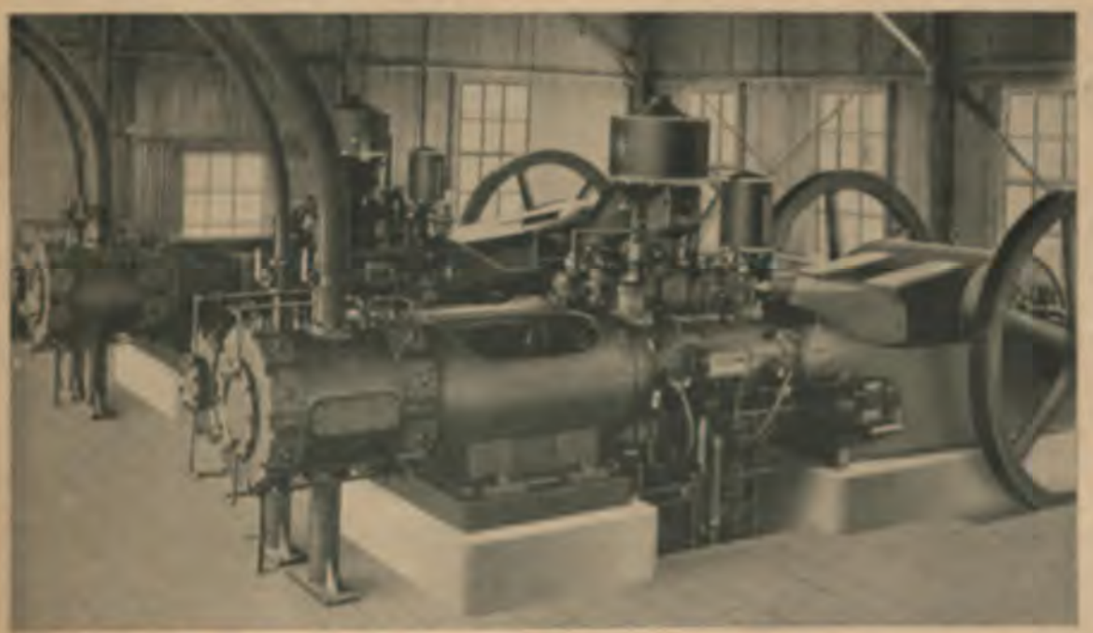
# NATURAL GAS AND GASOLINE JOURNAL

VOL. 11 OCTOBER 1917 NO. 10

**COOPER DUPLEX GAS ENGINES**
**FOR DIRECT DRIVING COMPRESSOR CYLINDERS**



Two 175 Brake Horse Power **Cooper Duplex Gas Engines** and Two-stage Compressor Cylinders, compressing Casing-head Gas from 15# vacuum to 250 lbs. gauge discharge pressure.

***FOR GASOLINE PLANTS AND BOOSTER STATIONS***

WRITE FOR SPECIAL DUPLEX BULLETIN

**THE C. & G. COOPER CO., Mount Vernon, Ohio**

PUBLISHED BY THE PERIODICALS PUBLISHING COMPANY
Central Office and Publishing Plant, Buffalo, New York

# The New Westinghouse Positive and Proportional Gas Meters

## For Intermittent or Continuous Service.

The New Westinghouse Positive and Proportional Gas Meters are particularly efficient for the measurement of casing head gas, or gas impregnated with gasoline, unpressure or vacuum.

The bearings are self lubricating, and an automatic over-flow drains of all gasoline ***or other condensation.***

The construction of these meters is all metal.—No leather diaphragms to become hard and brittle.

**Westinghouse Positive Gas Meter**

**For Full Particulars Address:**

# Pittsburgh Meter Company

**General Office and Works:** EAST PITTSBURGH, PA.

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# NATURAL GAS AND GASOLINE JOURNAL

VOL. 11 NOVEMBER 1917 NO. 11


## COOPER GAS ENGINES

Three 970 B. H. P. Twin Tandem Double-Acting **Cooper Compressor Units,** at the Taft, Calif. Station, of the Midway Gas Company.

**REPEAT ORDER. A fourth Cooper Unit, duplicate of those shown above, is being built to increase the capacity of this station.**

**THE C. & G. COOPER CO., Mount Vernon, Ohio**


PUBLISHED BY THE PERIODICALS PUBLISHING COMPANY
Central Office and Publishing Plant, Buffalo, New York

For the Measurement of Casing-Head Gas, or any gas containing condensate

# An Automatic Overflow

drains off all gasoline or other condensation in the

# New Westinghouse Positive and Proportional Gas Meters

**Westinghouse Positive Gas Meter**

Be progressive, don't continue using an unsatisfactory meter just because you have always used that particular kind.

Westinghouse Positive and Proportional Gas Meters pick up the slightest minimum load with the same accuracy as they carry the maximum.

Why not get out of the old rut of bleached, broken and dry leather diaphragms? Use Westinghouse Positive and Proportional Meters. —***They are all metal.***

## Pittsburgh Meter Company

**General Office and Works: EAST PITTSBURGH, PA.**

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# NATURAL GAS AND GASOLINE JOURNAL

VOL. 11 DECEMBER 1917 NO. 12


## COOPER GAS ENGINES

**STANDARD FOR COMPRESSOR SERVICE**

**Indications now point to a serious shortage of materials and manufacturing facilities for 1918. We are in position to contract for a limited amount of Gas Engine Work. Consult us at once if interested.**

**THE C. & G. COOPER CO., Mount Vernon, Ohio**


PUBLISHED BY THE PERIODICALS PUBLISHING COMPANY
Central Office and Publishing Plant, Buffalo, New York

# Westinghouse

## Improved Positive and Proportional Gas Meters

Have solved the gas man's greatest trouble

## Disposal of Condensation

For measuring Casing-Head Gas, or any gas impregnated with gasoline or other condensate, whether under pressure or vacuum.

Westinghouse Positive Gas Meter

## An Automatic Overflow

### Drains Off All Condensation

Westinghouse Improved Gas Meters are all metal construction — no leather used in any part. Leather diaphragms stretch and break when used under high pressure, and, when used under vacuum or ordinary pressure, become worthless after a few days subjection to condensate, making registration inaccurate, or stopping the meter.

Westinghouse Improved Gas Meters pick up the slightest minimum load as accurately as they carry the maximum. The bearings are self-lubricating eliminating undue wear.

## Pittsburgh Meter Company

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*Also manufacturers of "Ironclad" Dry Gas Meters, Meter Provers,— and "Keystone" and "Eureka" Water Meters.*

# Ready Just When Needed!

The tool equipment of every oil company, refining company and pipe line company is incomplete without an

**IMPERIAL WELDING OUTFIT**

Within a few hours after the most serious break, metal parts can be inseparably joined and work continued as a result of its use.

Fullest protection against loss from an accidental shutting off of the flow is given when you possess an

## IMPERIAL WELDING CUTTING EQUIPMENT
OXY-ACETYLENE PROCESS

There will be no need to wait for a replacement of broken pipes or fittings with new equipment. Welding pipes together and sealing leaks can be quickly and permanently done. Operations continue with practically no interruptions. Portable and convenient, an *Imperial Welding and Cutting Torch* is ready on the instant for effective service.

## In The Oil Field

When heavy machinery breaks or expensive tools crack, don't scrap them. Broken-down under-reamers, drill jars, boilers, steam boilers, etc., can be repaired or reclaimed by an *Imperial Welding and Cutting Torch*. An *Imperial Outfit* often pays for itself as result of a single operation. Its upkeep cost is nominal, due to its proved economy in gas consumption.

In the severest competitive tests, the unrivaled SAFETY, ECONOMY and EFFICIENCY of *Imperial Cutting and Welding Equipment* have been demonstrated. Write today for new catalog containing valuable data on the cost of operation, views of work performed, prices, etc.

**Imperial Brass Manufacturing Co.**
**522 S. Racine Avenue**
**Chicago, Ill.**

No. 1 Imperial Outfit with Truck

San Francisco Sewage Pumping Station, California.
Sewage.

Spring Valley Water Co., San Francisco, Cal.
Cold Water.

BUILDERS VENTURI IRON FOUNDRY

## "The Universal Meter"

The Venturi Meter is used in many fields when accuracy is required but where the available space is limited. It is measuring today gas, natural gas, hot and cold water, irrigation water, crude and fuel oils, oil, steam and sewage. In every instance it has proved a faithful and tireless worker and an indispensable member of the force.

We publish new information frequently and shall be glad to send it on request. Our Bulletins 170 and 176 on the VENTURI'S use in Gas Plants will prove interesting reading. May we send them?

Baldwin Locomotive Co., Philadelphia, Pa.
Hot Water.

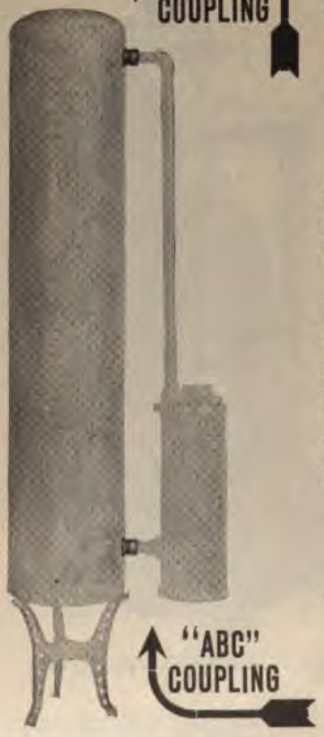
**BUILDERS IRON FOUNDRY, Providence, R. I.**

*"BUILDERS OF THE VENTURI"*

New York Chicago Pittsburgh San Francisco
Portland Toronto Vancouver

Harvard Medical School, Cambridge, Mass.
Brine.

Portland Gas & Coke Co., Portland, Ore.
Gas.




# TANK-HEATER COUPLINGS

THE (ABC) A. B. CARLSON

## NEW UNIONS

### FOR CIRCULATING WATER-HEATERS

THESE COUPLINGS in the form of unions may be introduced by drilling with a tool that we supply at a small cost. One tool will drill hundreds of boilers.

THE COUPLING provides for boiler connections at points to overcome friction, thus *increasing efficiency,* giving *better circulation* and *quicker water-heating results.*

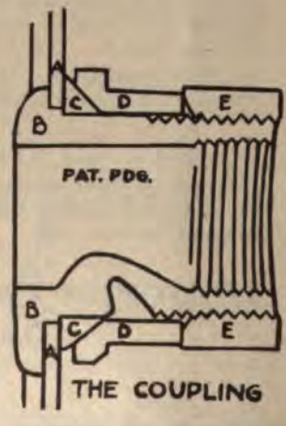
WITH THIS SYSTEM no boiler sediment gets into coils of tank water heater.

*HEATER CANNOT SYPHON*

**THE A. B. CARLSON CO.**

1000 SHERBURNE AVE.

ST. PAUL, MINNESOTA



# When Efficiency is the Watch-word

# RESULTS COUNT!

## DOES 5% GAIN IN EFFICIENCY APPEAL TO YOU

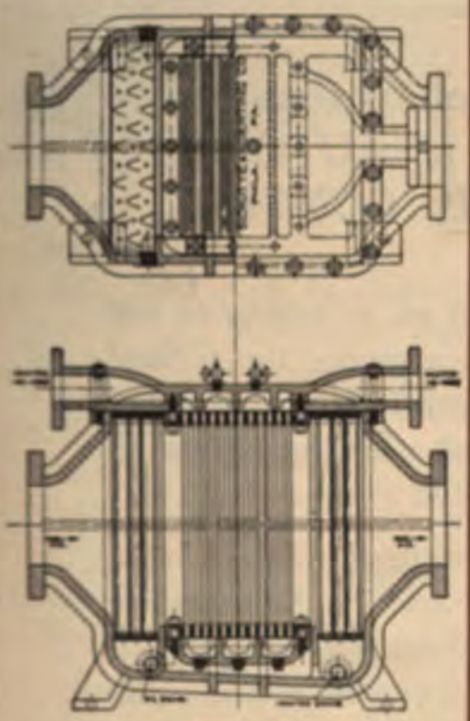


Fig. 1253

In the process of recovering Gasoline from Natural Gas by the compression system, efficient cooling units are an essential feature.

By installing **S. & K. After-Coolers** on the Gas Compressors and cooling the compressed gas by means of Boiler Feed Water circulated thru the tubes of the Cooler, an actual gain of

**5%**

in efficiency of your boilers can be secured.

The **S. & K.** cooling units as illustrated are the most efficient and compact units it is possible to secure.

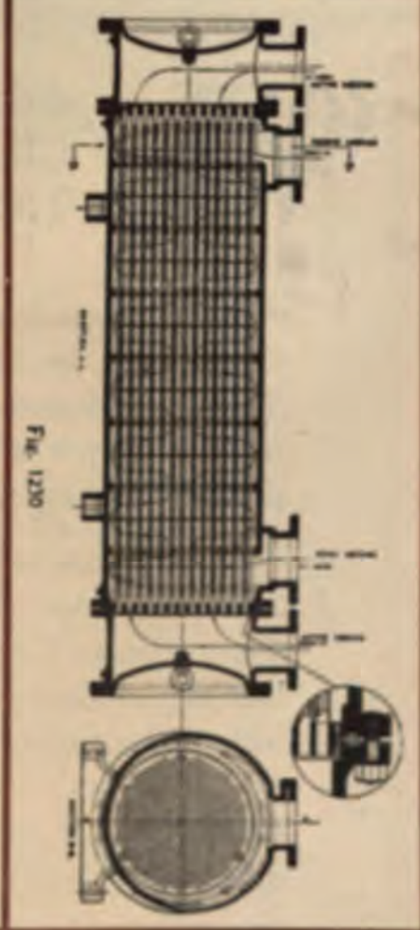


Fig. 1230

## Heat Exchangers and Distillers

for use in Gasoline Absorption Systems are furnished by the **S. & K. CO. as shown**

and are unsurpassed for low water requirements, weight, compactness and final results.

**Send for Catalog No. 12 Illustrating the S & K Heat Transmission Apparatus**

# SCHUTTE & KOERTING CO.

**Thompson & 12th Street, PHILADELPHIA, PA.**

NEW YORK — 50 Church St.
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BOSTON — 10 High St.
CLEVELAND — Union Building
PITTSBURGH — Oliver Building
DENVER — 1st. Nat. Bank

GILBERT

For Any System of Combustion.
Any Form of Industrial Apparatus Using Gas Fuel.
Any Temperature 120°F to 3000°F.

System of Automatic Temperature Control

"Why did not the gas man tell us about the GILBERT SYSTEM of AUTOMATIC TEMPERATURE CONTROL?"

—Is the hardest question we are called on to answer to our clients when we have installed and put in service the *Gilbert System of Automatic Temperature Control* on an oven, furnace, metal pot or other industrial apparatus left incomplete by the gas company who sold it and installed it.

There are now hundreds of manufacturers in the United States who know more about this *Gilbert System of Automatic Temperature Control* than you do and these men will tell you that any proposition you name them is not complete unless you include the *Gilbert System of Automatic Temperature Control.* We are constantly adding to this list of satisfied users and are covering in our work all manner of apparatus and very many different processes.

We invite your co-operation along definite lines. Send us your bonafide inquiries and let us make our recommendations and quote you prices.

H. E. GILBERT COMPANY, INC.
50 CHURCH STREET, NEW YORK

# "B. & S."

## No. 11

# Direct Driven Pumping Power

## IT'S DEPENDABLE

No. 11 Power, geared direct to one of our 5-H. P. Air-cooled Gas Engines equipped with auxiliary exhaust High Tension Dixie Magneto and mounted on steel beams, makes an ideal pumping outfit, the most compact of any power on the market. It requires no belt, and takes up floor space only 4' 6" by 5' 6" and needs but a small foundation and building.

The back foundation beam is regularly drilled for a bracket to carry the Outboard Bearing of Pulling Drum, allowing the drum to be attached at any time in a few minutes without any additional foundation.

The engine is equipped with a roller-bearing lever clutch, which is very strong, yet simple in construction. It engages and releases quickly, easily and surely.

**Bovaird & Seyfang Manufacturing Co.**

PITTSBURGH, PA. - - BRADFORD, PA.

# SOLVING THE PROBL

## Why do you

"Because," you say, "it is instinctive to keep
the rain."

And, so it is. But has it ever occurred to y
this simple canopy, or umbrella idea affords th
protection to the burners of a water heater?

Just as exposure to rain produces a cold,
your breathing organs and impairs your vita
does exposure to condensate water affect the
of an automatic water heater. Water splashi
them impairs their combustion and the re
carbonized gauzes and subsequently carbonize

# AME

*Gas-Fi*

## Wate

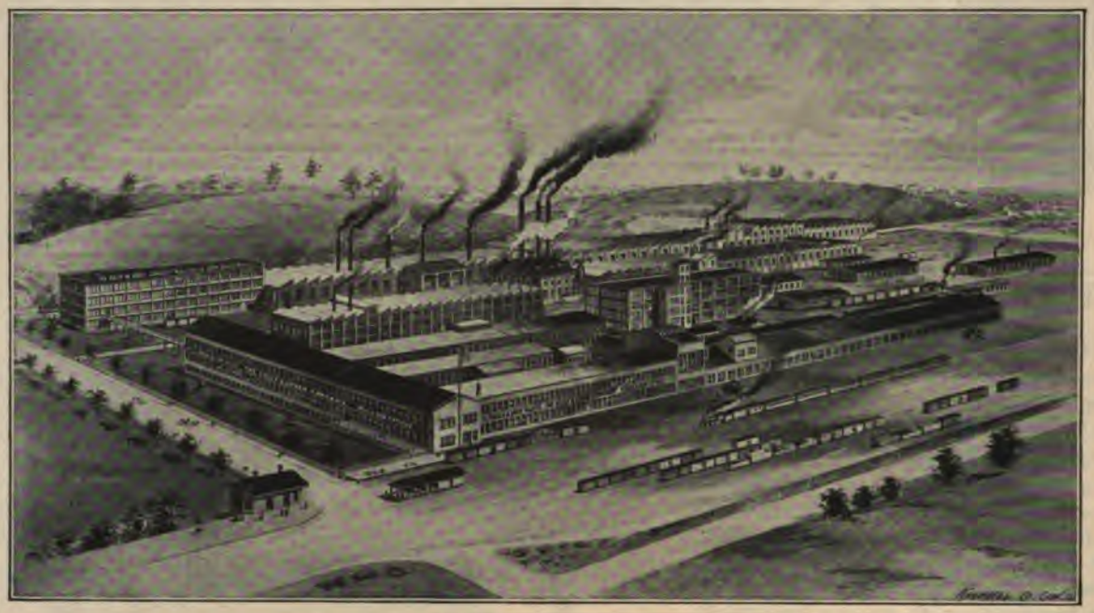
solve the problem of condensation by revolut
the principle of water heater construction. The
of an American Water Heater are placed in a
out of the path of falling condensate wate
permits the water to fall straight into a drip p
which it is evaporated by the heat from the

"American-ize Yo

We sell to Gas Companies and to Plumbing Supply Houses only. Direct inquiries are sent to local dealers.

AMERICAN WA
ST. LOUIS

# THE KELLY & JONES CO.



THE HOME OF KELLY & JONES PRODUCTS

# VALVES AND FITTINGS

Our Line of Brass, Iron and Steel Valves and Fittings has been developed with the demand of engineering science, and the progress of the various industries.

A wide experience gained in designing and erecting steam heating and hydraulic engineering, made us familiar with the wants of the trade and shaped our manufacturing policy from its inception. This knowledge and experience, together with the location of our modern plant and its facilities, are responsible for the success of products bearing the K. J. mark.

Our catalog is a complete guide in the matter of specifying and buying valves and fittings, for steam, gas, water, air and oil.

*SEND FOR A COPY TODAY*

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**Federal Engineering Company**

Pittsburgh, Pa.

**Consulting and Contracting Engineers**

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Production, Transportation and Distribution of Natural Gas

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415 Central Bank Building
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120 Broadway, NEW YORK CITY 715 19th St., N. W., WASHINGTON, D. C

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CONSULTING CHEMICAL ENGINEER

Careful tests of natural gas to determine gasoline content. Gasoline plants operated at highest efficiency. Compression and absorption process. Natural gas, gasoline, petroleum.

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OIL AND GAS

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306 STATE HALL
UNIVERSITY OF
PITTSBURGH

**PITTSBURGH, PA.**

**NEW PIPE**

IMMEDIATE SHIPMENT

All or any part of 200,000 feet of 5", 5-1 4" and 5-3 8", O. D. Plain End.

**R. W. HANNAN**

323 FOURTH AVE.

PITTSBURGH, PENNA.

FOXBORO
TRADE MARK

*The Countersign*

FOR THE GAS MAN TO
USE WHEN ORDERING

# GAS FLOW METERS

FOXBORO stands for Permanent Accuracy, combined with Flexibility, Simplicity, and Durability. These four sentinels consistently guard the construction of

## FOXBORO ORIFICE METERS

You are safe if you specify FOXBORO

WRITE FOR BULLETIN AR-119

**THE FOXBORO CO., Inc.**

FOXBORO, MASS.

New York Chicago Pittsburgh St. Louis
Philadelphia Birmingham San Francisco
Peacock Bros., Montreal, Canada

# LUDLOW VALVES

**Are Reliable and the Best for Natural Ga**

*If the valves you buy are labelled Ludlow, you are safe. Can't be otherwise for every valve undergoes a rigid test and inspection before we let it go. All parts both iron and bronze are extra heavy. The SEATS HAVE GROUND FACES and all joints are absolutely tight.*

*Ludlow valves are carried in stock by all the leading supply companies in the oil and natural gas districts.*

**THE LUDLOW VALVE MFG. CO., TROY, N. Y.**

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KANSAS CITY — R. A. Long Bld'g
CHICAGO — 633 The Rookery
BOSTON — Oliver Bld'g
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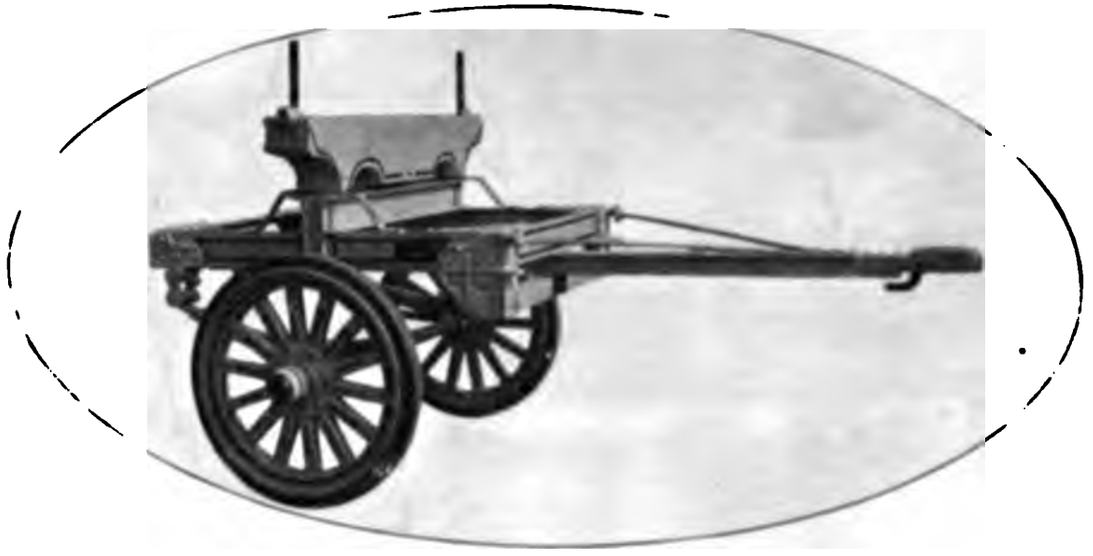


# Cut Your Hauling Costs
## With Warner Trailers

WARNER heavy-duty truck trailers (2 and 4-wheel types) are now being successfully used by some of the largest oil and gas producers in this country. They have proved their worth in actual operation. The trailer method of hauling is the most economical and efficient. It doubles the value of your truck.

Models D 10 and D 20 (2 wheel types) are designed specially for work in the oil and gas field. They carry 20 to 30 ft., 5 and 6 inch oil casing and pipe. Also all the incidental material and equipment in connection with oil and gas wells such as boilers, bits, rigging timbers, etc. These trailers also are used for moving derricks from old drillings to new as well as for hauling casings to wells, pipes for gas lines, pipes for gasoline plants, etc.

The Warner was the pioneer in the Truck Trailer field. Warner Trailers have many patented exclusive features including patented hitch socket which forms a universal joint with a ball fastened to the rear end of the truck. This feature provides flexibility and security.

Send today for Heavy Duty Truck Trailer Folder giving complete specifications of the list of exclusive features of advantage and uses for the Warner Trailers. Let us tell you what's in the Warner Trailers without the hauling cost for you.

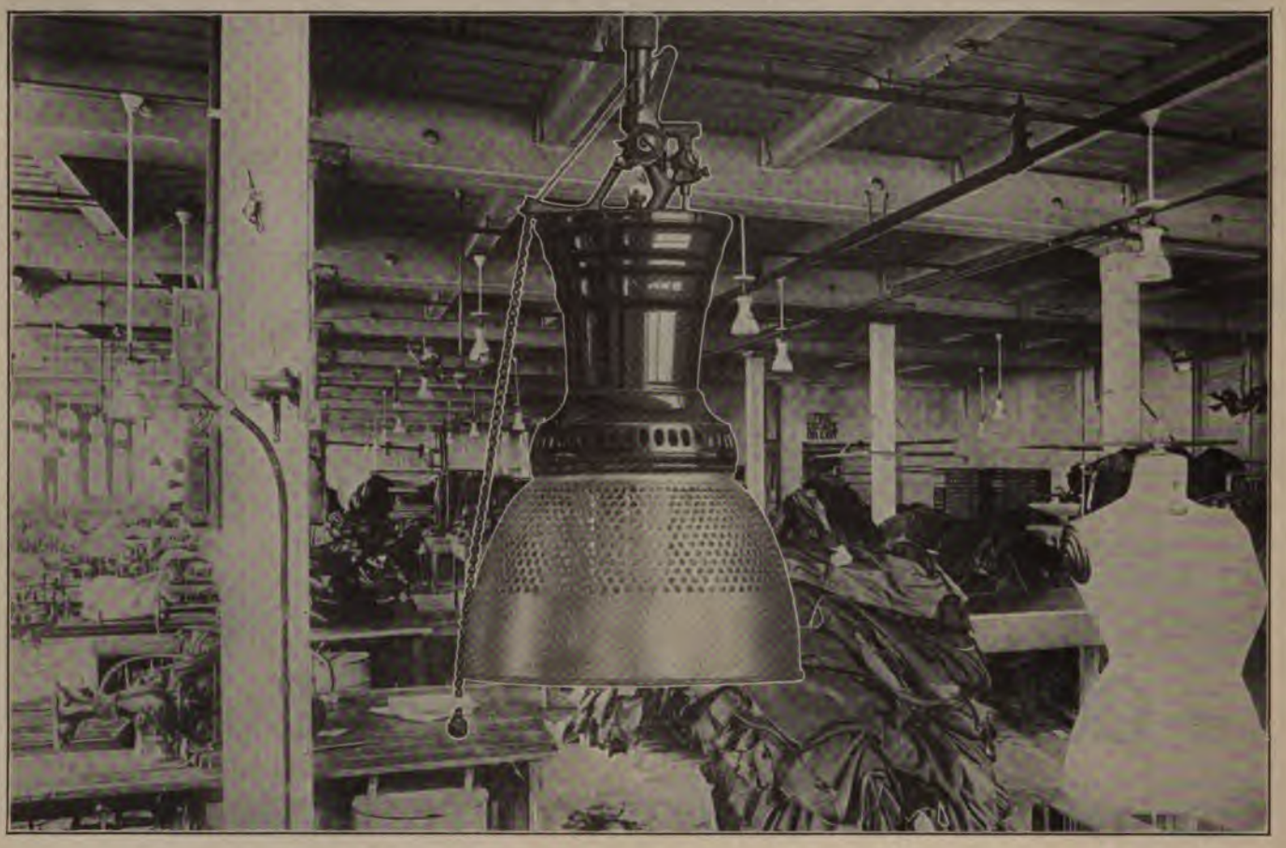
*Warner Trailers Now Being Used in Oil Well Field*

**Warner Manufacturing Co.**

Gas Service Department T

**Beloit, Wis.**

*Makers of Every Type Trailer for Truck and Automobile Use*



# *The Big Light For Big Business*

MANUFACTURERS the country over are waking up to gas lighting. Face to face with the absolute need for abundant, eye-comforting and dependable light, they are finding out what you've known for years—that only gas gives such a light.

Make the most of this awakening. Meet the needs of manufacturers with the light of big business—the

## Welsbach Factory "Reflex-20"

The coming winter will be one of overtime work done by artificial light with accuracy at a premium.

You can offer the Factory "Reflex-20," certain of your customers' complete satisfaction. Are you ready to take advantage of this assured demand?

Remember that the store-keeper is just as eager for this light as the manufacturer, and put in your orders today for Standard "Reflex-20."

If you act *now* you can obtain these goods. Tomorrow—materials will be scarcer—lamps may be harder to get.

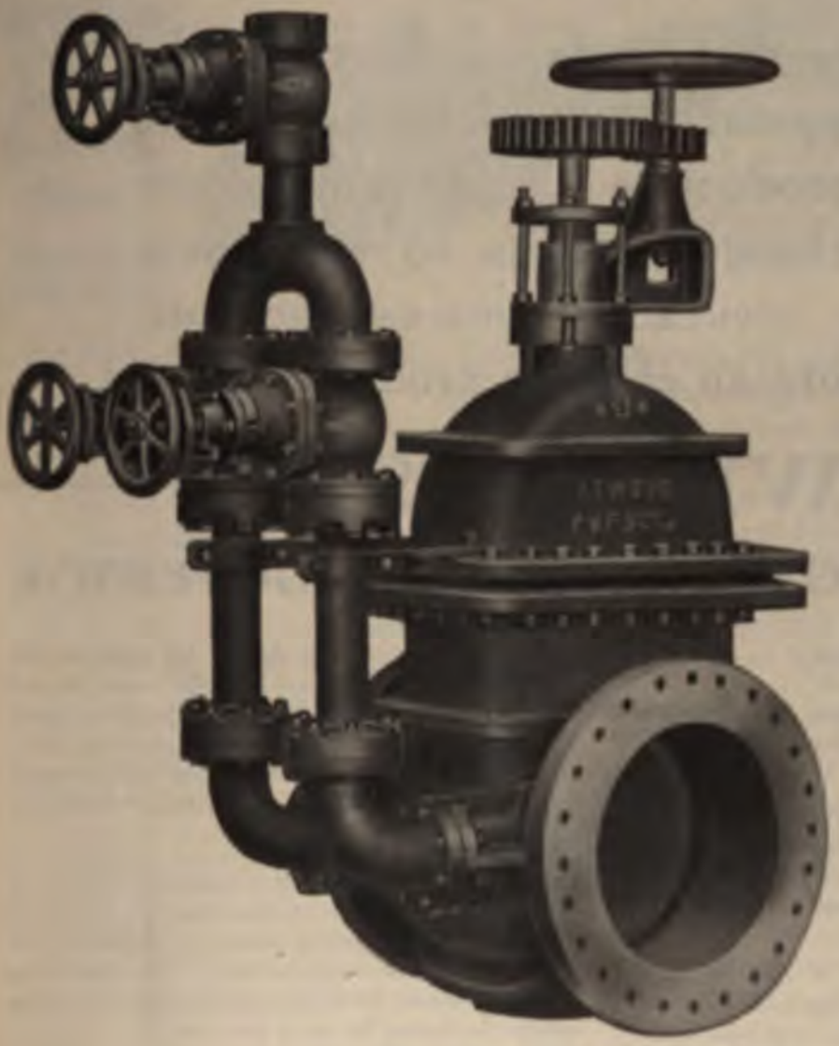
The "E-E" Lighter
(The Pilot that can't blow out)
is now a part of the "REFLEX 20"
This exclusive Welsbach feature means that all pilot outage due to draughts is a thing of the past wherever the REFLEX 20" is installed

**WELSBACH COMPANY**
GLOUCESTER, N. J.

# High Pressure Gas Line Valves and Fittings

FOR

## NATURAL GAS



The illustration shown is an eighteen inch high pressure inside screw spur geared gas line gate valve with three valve riser blow-off by-pass.

This by-pass can be used to pass the gas around main valve, or to empty line on either side of main valve, when same is closed.

All of our high pressure valves are provided with a repacking feature on the stuffing box, which permits of readily repacking the valve with pressure on and valve open, by eliminating the very troublesome feature of having the gas blow through the stuffing box when packing is removed.

---

**Pittsburgh Valve, Foundry & Construction Co.**

**Pittsburgh, Pa.**

**ENGINEERS FOUNDERS PIPE-FITTERS MACHINISTS**

# For Your Product Use Only Superior Material *and* Aim to Make That Product as Efficient as Possible

We believe that by following this rule, we have approached as nearly as possible with our product to 100 per cent. accuracy. In changing design to meet new needs, the accuracy remains constant. ---Therefore an effcient product.

## WITNESS

### The FULTON GAS-FUEL BOILER GOVERNOR

Its purpose is to automatically feed the gas to the boiler furnace in such quantity as to maintain a constant given steam pressure under varying conditions of lead.

Bear in mind that it is not a gas Pressure regulator. It controls the flow of gas to the burners with the boiler steam pressure as the acting controlling agency.

The device consists in general of a set of valves opened by a weighted lever and closed by the steam pressure of the boiler, thus admitting or shutting off the gas as the demand for steam on the boiler varies. If the steam pressure tends to fall, the weighted lever opens the valves admitting more gas; if it tends to rise, the increased pressure closes the valves slightly reducing the flow of gas.

It is made to maintain ANY given pressure of steam desired, constant and unvarying from one pound to one hundred and fifty pounds, or more, without attention from the engineer, no matter how frequently nor how greatly the demand for steam may vary.

READ OUR PRECEDING AND SUBSEQUENT ADVERTISEMENTS THEN WRITE FOR CATALOGUE.

## THE CHAPLIN-FULTON MFG. CO.

28-34 PENN AVENUE PITTSBURGH, PA.

THE

# GWYNN GAS BURNER

**Whirling or Rotary Mixing is the Approved Up-To-Date Method**

***Read the Proof Below***

**Every Burner equipped with Low Gas Pressure Controlling Valves and means for providing efficient and thorough mixing of gas and air on very low gas pressures.**

THE construction of our burners is such that the gas is discharged through the side walls of the Burner at an angle to the axis, and forms a converging cone in the center of the burner through which air cannot pass without coming in contact with the gas. The angle at which the gas inlet holes are drilled puts a spiral or rotary motion on the column of gas and air while passing through the Mixing Chamber, thereby insuring a perfect mixture before reaching the point of ignition.

We quote the following abstract from a current gas publication as referring to advanced methods of correct firing of furnaces.

"Two fundamental principles of firing are recognized — parallel current and whirling or eddying current firing. In most of our present methods of firing the parallel current prevails. The ordinary Bunsen burner represents the former type while the so-called flameless combustion is a good example of the second type. Owing to the thorough and rapid mixing of gas and air in the second type of firing complete combustion takes place rapidly and is confined to a very narrow and well defined zone of combustion. This cuts down the amount of air necessary to the minimum requirements and results in the attainment of much higher temperatures. The net result of such firing is that the efficiency of heat transmission is greatly increased. It is urged that in all installations where the saving methods of firing be [illegible] when [illegible] and [illegible] the [illegible] ems.

***Catalog No. 40 tells the story.***

---

# THE GWYNN ENGINEERING CO.

Office, 714-715 Empire Bldg.
Factory, 100-108 Liberty Ave.

Pittsburgh, Penna.

# SHORTAGE OF GAS

IS INDUCING THE

MIXING OF

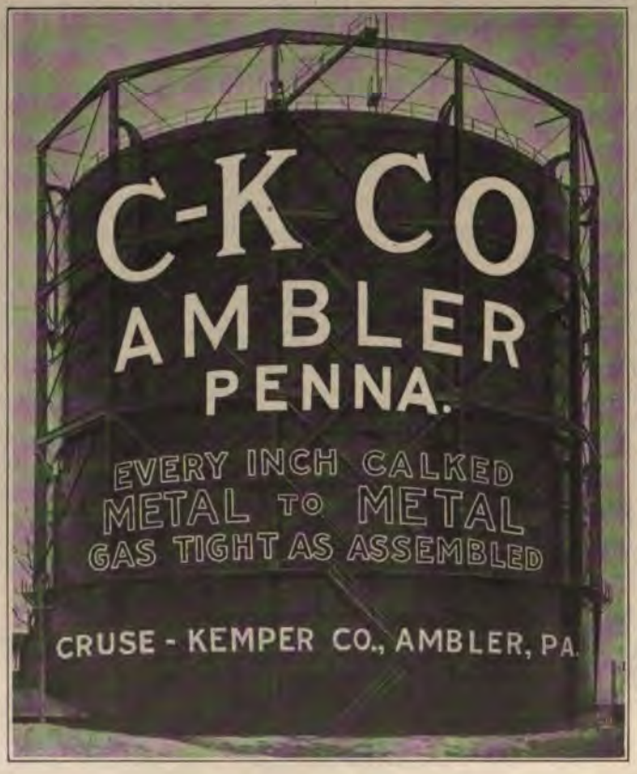
THE TWO GASES **NATURAL AND MANUFACTURED**

AS A RESULT

**GAS-HOLDERS ARE REQUIRED.**

**Where Manufactured Gas** is produced Gas-Holders are a necessity, this therefore applies where the two gases are to be mixed.

**"C-K CO" Gas Holders** are reliable Holders and are already in use by several Natural Gas Companies, the new field for Gas Holders. Extensively the Manufactured Gas Companies use "C-K Co." Holders.




**Engineers Contractors**

**Manufacturers**

Prompt Deliveries Assured By Large Stock Constantly Replaced.

**STEEL TANKS, PURIFIERS, FLUES, STACKS, HOPPERS**

**PLATE WORK**

---

**WE ERECT EVERYWHERE**

---

# CRUSE-KEMPER CO.

**AMBLER, PENNA.**

CABLE; CRUSKEMPER, AMBLER, Western Union Code

# A Message to Service

## PROSPECTIVE BUYERS

Wabash, Ind., Dec. 1917.

Gas Company Managers,
Dear Sirs:-

The "Service" Motor Cars meet every need or demand of Gas Company Service.

Emergency calls, street construction and maintenance work, field line demands, etc.

The power of the worm-drive is recognized, the "Service" Motor Vehicles and Trucks are "worm-driven".

Five capacities and any type of body required, meets the several demands of Gas Companies.

You require SERVICE. We manufacture the 'Service' Commercial Cars.

Yours truly,
*Service Motor Truck Co.*

Service

# MOTOR TRUCKS

**5 SIZES** For the Requirements of Delivery, Emergency, Construction, Distribution, Meter, Fitting Depts.

| | | | | |
|---|---|---|---|---|
| 1 TON | Chicago, Ill. | Newark, N. J. | Baltimore, Md. | New Orleans, La. |
| 1½ TON | New York, N. Y. | Indianapolis, Ind. | Columbus, Ohio | Hoboken, N. J. |
| 2 TON | Butte, Mont. | Buffalo, N. Y. | Cincinnati, Ohio | Philadelphia, Pa. |
| 3½ TON | St. Louis, Mo. | Salt Lake City, Utah | Canton, Ohio | Rochester, N. Y. |
| 5 TON | Louisville, Ky. | Milwaukee, Wis. | Pittsburgh, Pa. | Tulsa, Okla. |
| | Omaha, Neb. | Bridgeport, Conn. | Denver, Colo. | Detroit, Mich. |
| | Boston Mass. | Des Moines, Iowa | Washington, D. C. | Youngstown, Ohio |
| | Brooklyn, N. Y. | Kansas City, Kan. | Savannah, Ga. | Cleveland, Ohio |

## SERVICE MOTOR TRUCK CO.

MAIN OFFICE AND FACTORY

**WABASH, INDIANA**

Jarvies GAS BURNER H&P CO. INCORPORATED

# THE SPREADING FLAME

## ACCOMPLISHES PERFECT AIR AND GAS MIXING

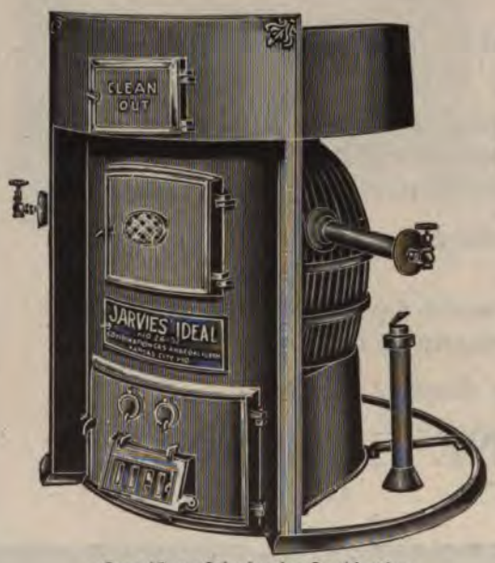
### Proper Application of Heat
### Perfect Combustion and Right Regulation

ALL JARVIES BURNERS are similar to this illustration but in sizes to suit needs.

THE DISC SCREWS FORWARD OR BACKWARD ON THE SPUD, INCREASING OR REDUCING AIR ADMISSION

THIS BURNER may be applied to coal furnaces already in use, ***without removing the coal grate.*** The burners are installed through the coal door opening — ***need not be removed when firing with coal.***

Showing how **JARVIES GAS BURNERS** operate in the **JARVIES COMBINATION GAS AND COAL STOVES** and **JARVIES COMBINATION GAS and COAL FURNACES.**




Open View of the Jarvies Combination READYBUILT Gas and Coal Furnace

# WHY ?

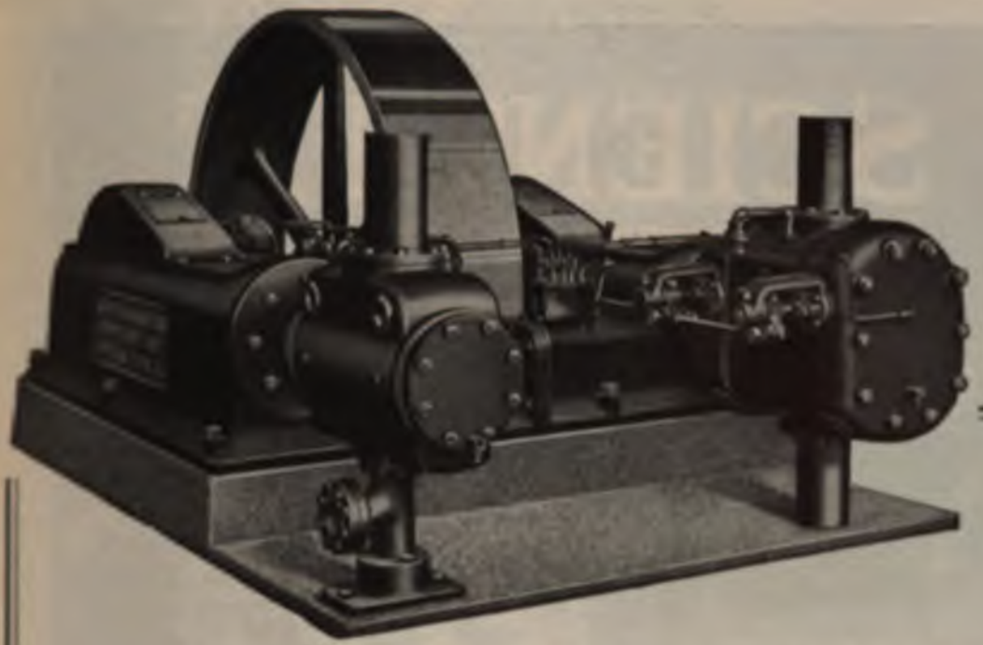
do users of stoves and furnaces fail to recognize that combination coal and gas appliances afford secureness from famine, either of gas or of coal.

To use an old coal furnace or stove with a ring gas burner *when gas is plentiful* means to remove the burner with much annoyance *when there is a gas shortage.*

The *Jarvies* combination gas and coal furnaces and stoves are the *always ready kind*, the gas burner is not removed when coal is used. The *Jarvies* Furnaces and Stoves may be used exclusively with gas or with gas as an auxiliary to coal, or with gas to ignite the coal from the top, thus the coal burns down which prevents clinkers and smoke.

## Jarvies Gas Burner, Heating & Plumbing Co.

**4022 Belleview Ave., KANSAS CITY, MO.**



For economical operation, the gasoline extraction plant requires mechanical equipment of the highest reliability, coupled with efficiency and automatic operation.

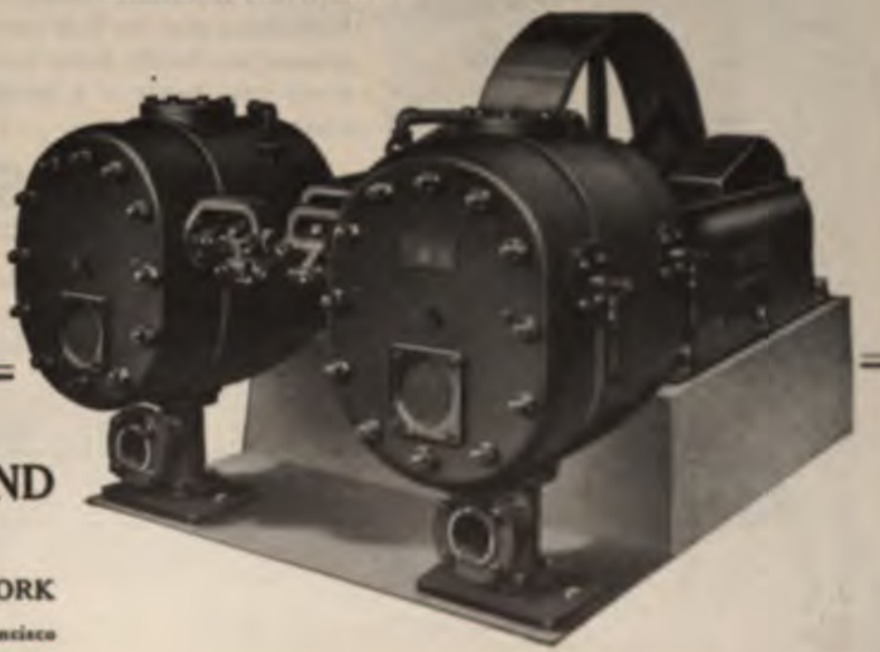
# "IMPERIAL" COMPRESSORS AND VACUUM PUMPS

are of the perfected design and high standard of manufacturing excellence to insure the attainment of ultimate economy.

They are distinguished by "Imperial" cylinder design, noiseless valve action, wholly enclosed construction, automatic flood lubrication of reciprocating parts and force feed cylinder oiling. Bearing surfaces are of ample area, water jacketing provided on both cylinder barrels and heads.

When selecting "Imperial" equipment you insure permanent satisfaction.

ASK FOR BULLETIN No. 3118.



131-M

## INGERSOLL-RAND COMPANY

11 BROADWAY - NEW YORK

Pittsburgh—Cleveland—St. Louis—San Francisco

SCIENTIFIC
SAFETY GARAGE
HEATER
Sell the Better Class
This class of customer will readily appreciate the advantage — convenience and economy to be derived from the installation of a Scientific Safety Garage Heater. Remember that the field for this type of appliance has hardly been touched, and that every car owner is a prospective user of more gas.
Get Your Sha
We can l
profit
cor
of this
ed the
l help
Co.
Ohio

# WELDING OR CUTTING GAS MAINS

DIRECTING ATTENTION TO

THE MAKING OF
"Y", "X", "T"
in the field
right on the job
WITH
"MILBURN" OXY-ACETYLENE
WELDING AND CUTTING
APPARATUS

Portable Welding and Cutting Plant

The Alexander Milburn Co.
BALTIMORE, MD.

DO YOU [illegible] BLOCK No. 28
[illegible] Movable Outdoor Arc
TRADE FUTURE:
[illegible]
LIGHTING
[illegible]ns"

BURN" Outdoors, Out in the Field, Cutting and Welding

# Linde Service—to Those Entitled to It

THE requirements of Oxygen users in a certain section of our country recently increased some six hundred per cent in four months.

**Linde Service** met that situation by planning and rushing to completion two brand new manufacturing units in that district and by filling all orders in the meantime through relief shipments of cylinders from other warehouse stations in the Linde coast to coast chain of sixty-four links.

The extra cost to us for freight on these reshipments averaged over ten thousand dollars per month for the period mentioned.

The significance of this instance will be apparent to all users of Oxygen who appreciate the value and importance of sure and certain deliveries under the shifting business conditions of these uncertain times.

## The Linde Air Products Company

**42nd Street Building, New York City, N. Y.**

***"Largest Producers of Oxygen in the World"***

### Orders Filled Day Received from Following Plants and Distributing Warehouses

ALABAMA
*Birmingham

CALIFORNIA
*Emeryville, Oakland
*Los Angeles

COLORADO
Denver

CONNECTICUT
Hartford

DISTRICT OF COLUMBIA
Washington

GEORGIA
*Atlanta
Savannah

ILLINOIS
*Chicago
East St. Louis

INDIANA
*East Chicago
Fort Wayne
*Indianapolis

IOWA
Davenport
Des Moines

KANSAS
Wichita

KENTUCKY
Louisville

LOUISIANA
New Orleans

MARYLAND
*Baltimore

MASSACHUSETTS
Cambridge
Springfield
*Worcester

MICHIGAN
*Detroit
Grand Rapids

MINNESOTA
Duluth
*Minneapolis

MISSOURI
*No. Kansas City
*St. Louis

NEBRASKA
Omaha

NEW JERSEY
*Elizabeth
Newark

NEW YORK
Albany
*Brooklyn
*Buffalo
New York City
New York City (Bronx)
*Utica

OHIO
*Cleveland
*Cincinnati
Columbus
Dayton
Lima
Toledo
*Youngstown

OKLAHOMA
Oklahoma City
Tulsa

OREGON
Portland

PENNSYLVANIA
Erie
*Norristown
*N. Philadelphia
Pittsburgh
*Trafford

TENNESSEE
Chattanooga
Memphis

TEXAS
*Dallas
Houston
San Antonio

UTAH
Salt Lake City

VIRGINIA
Richmond

WASHINGTON
Seattle
Spokane

WISCONSIN
Manitowoc
*Milwaukee

*Indicate plants

3

# THE BLOCK GAS MANTLE COMPANY

## YOUNGSTOWN, OHIO

Manufacturers of

## INCANDESCENT MANTLES

FOR

Natural and Artificial Gas Lamps, Gasoline Lamps, Kerosene Lamps, Liquid Gas Lamps

AND

## MANTLES OF EVERY KIND AND DESCRIPTION

---

Manufacturers of

## GAS ARC LAMPS

---

BLOCK No. 17
Indoor Arc

## MANUFACTURERS OF THORIUM NITRATE

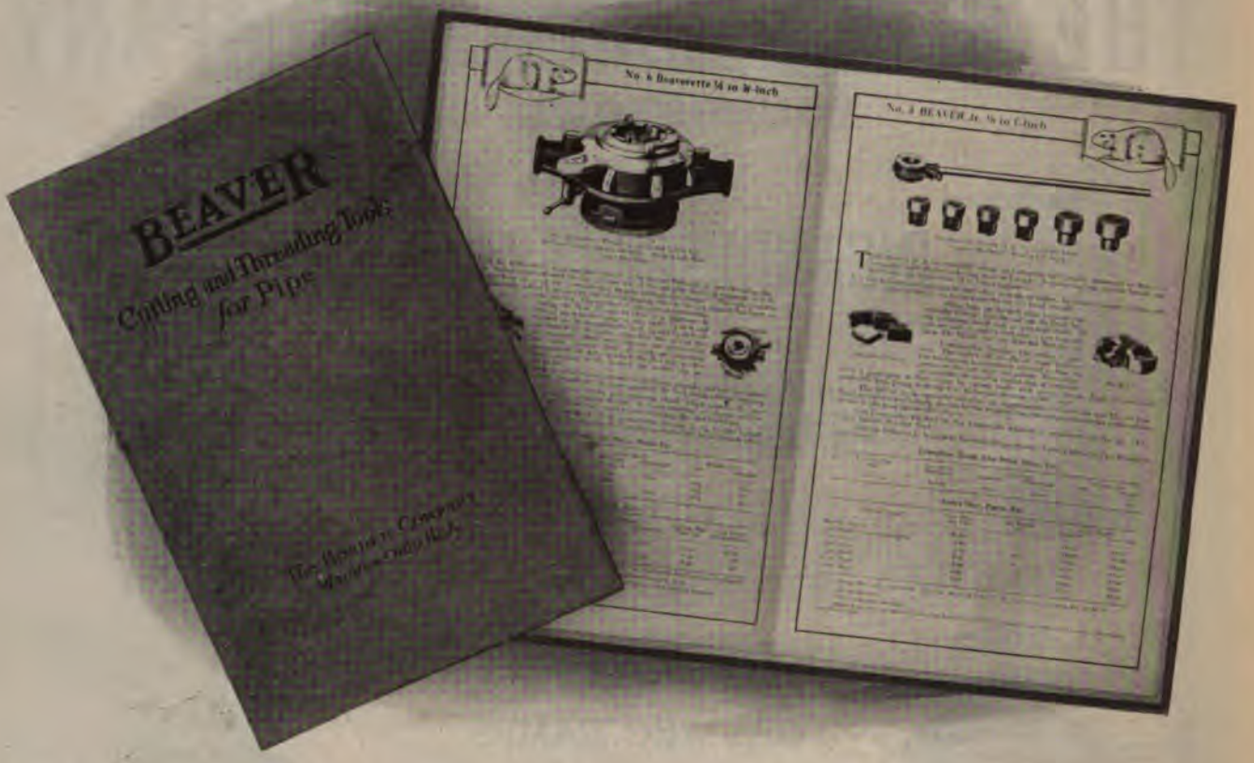
The Principal Raw Material used in the manufacture of Incandescent Mantles.

**DO NOT FAIL TO WRITE US IF QUALITY, PRICE AND PROMPT DELIVERY ARE OF INTEREST**

BLOCK No. 26
Five Mantle Outdoor Arc

## OUR POLICY OF THE PAST AND FOR THE FUTURE:

"We give our trade the benefit of conditions"




# NEW BEAVER CATALOG

**Said to be the finest tool catalog ever issued.**

THE 1918 "Beaver" Catalog is now ready!

¶ In this attractive book you will find a clear comprehensive exposition of the labor and time saving advantages of "Beaver" Tools — qualities which have made "Beavers" ***supreme*** in the field of pipe cutting and threading tools.

¶ You will find, also, a complete-to-the-smallest-detail description of every "Beaver" Easy-Working Die Stock (⅛ to 12 inch), "Beaver Square-End Pipe Cutter (⅛ to 6 inch), and of many other special threading tools.

¶ This 1918 "Beaver" Catalog will be a valuable addition to your library of modern engineering equipment.

¶ It's free—to those who are interested in doing pipe work properly, easily and economically.

¶ Mail the coupon — now!

## THE BORDEN COMPANY, Warren, Ohio, U.S.A.

(In Canada — The Borden-Canadian Co., 66 Richmond St., East, Toronto, Ont.)

**Send for Your Copy Now!**
(Use the Coupon)

THE BORDEN COMPANY, Warren, Ohio, U. S. A.
Kindly send me copy of new Catalog No. G-6.

Name ..... Position .....
Firm .....
Address .....
City ..... State .....

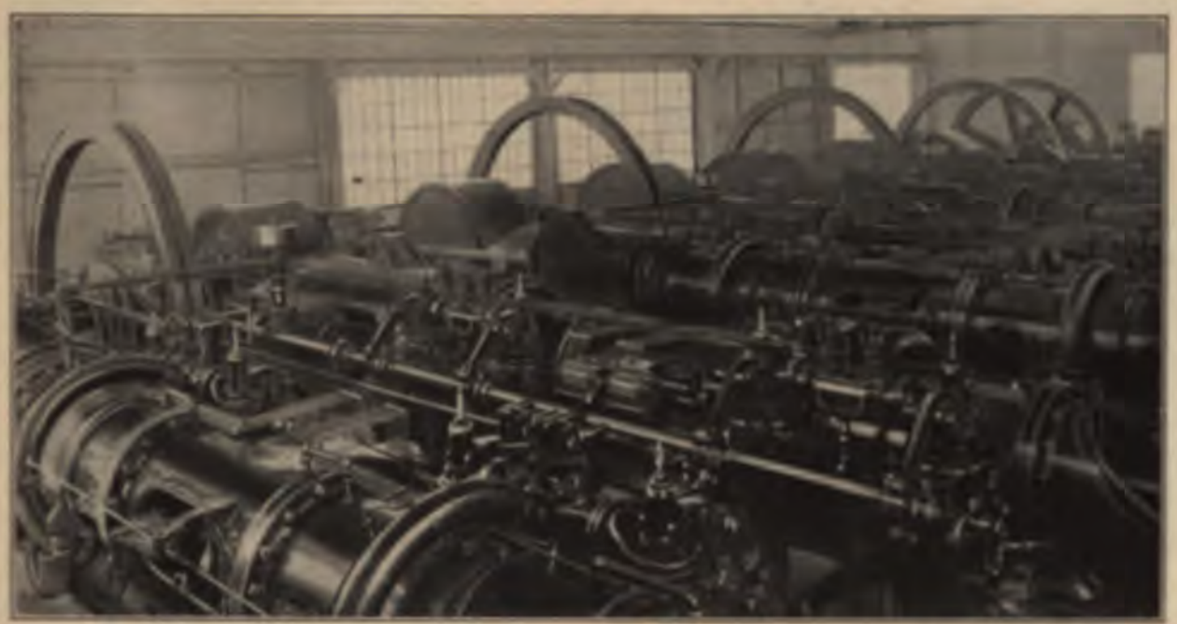
# "SNOW" ENGINES
## FOR
# COMPRESSING GAS

The selection of "SNOW" Gas Engines results in great economy in cost of installation and operation of gas compressor stations.

Shut-downs on account of engine or compressor troubles now unheard of.

Engine speed and consequent output always under control ot the operator.

The largest and most important companies use "SNOW" Compressors almost exclusively.

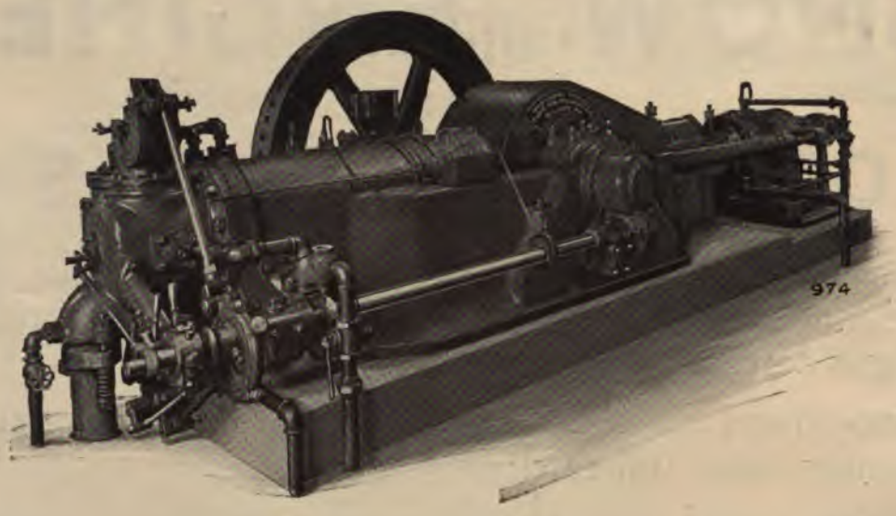


The Lone Star (Petrolia) Station, Petrolia, Texas, 5600 Compressor Horse Power.

*CATALOGUES AND ESTIMATES ON APPLICATION*

## WORTHINGTON PUMP AND MACHINERY CORPORATION

**115 Broadway, New York** **SNOW WORKS, Buffalo, N. Y.**




# *Dependability!*

TO render most efficient service in your factory, a gas engine must first of all be *dependable* — one that will furnish *continuous* and *adequate* power without costly delays, breakdowns and big repair bills. This

## *National Transit Gas Engine*

represents the latest development in gas engine design — the result of our many years of experimental work and manufacturing experience in the gas and oil engine field.

Note the features of this engine, and you will understand why we claim "dependability" for it.

Ask for Bulletins of the N. T. Gas Engines — we manufacture many types and sizes, large or small. Address Dep't "N"

**Some Features of Fig. 974, Type GH4A Cycle, Single Cylinder Engine Illustrated Above**

Sturdily built.
Simple design.
Minimum number working parts.
Best materials and workmanship.
Engine and gas compressor cylinders are separated.
Ample provision made for expansion and contraction.
Quiet, easy motion insures long life.
Automatic lubrication.
Starts by compressed air.
Make and break type ignition.
Interchangeable crank shaft.
Trunk type piston.
Jahns centrifugal type governor.
Klein type mixing valve.

# NATIONAL TRANSIT
## PUMP AND MACHINE COMPANY

Main Offices and Factories - - OIL CITY, PA.

District Offices in NEW YORK, PHILADELPHIA, PITTSBURGH, KANSAS CITY

# S. R. Dresser Manufacturing Company

## BRADFORD, PENNA., U. S. A.

## High Grade Pipe Couplings
## Sleeves,
## Clamps and Fittings,

**The Dresser All-Steel Coupling,**
**Style 38—Followers Pressed From Solid Plate.**

Sizes 2" I. D. to 4" I. D. Inclusive

Sizes 5⅝" I. D. to 10" O. D. Inclusive

Sizes 10" I. D. to 20" O. D. Inclusive

## Dresser Stands for Quality, Workmanship and Finish

**SEND FOR CATALOGUE and STATE REQUIREMENTS**

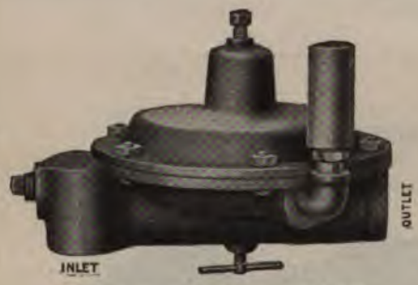
# REYNOLDS
# GAS REGULATOR COMPANY

MAIN OFFICE AND WORKS
**ANDERSON, INDIANA**

WE MANUFACTURE EXCLUSIVELY

## Natural Gas Regulators and Artificial Gas Governors

FOR ALL KINDS OF PRESSURE REDUCTION




LITTLE GIANT HOUSE REGULATOR

OUR NATURAL GAS REGULATORS ARE SOLD BY ALL THE LEADING SUPPLY STORES IN THE U. S. A.

LIGHT LINE REGULATOR

¶ You are taking no chances in buying our product as our goods have been on the market for over thirty years and have won a world-wide reputation for QUALITY, SERVICE and EFFICIENCY.

¶ If you believe in SAFETY FIRST, LAST and ALL THE TIME **Use REYNOLDS REGULATORS.**

HIGH PRESSURE NATURAL GAS REGULATOR

WRITE FOR
BOOKLET OF NATURAL GAS REGULATORS
OR
CATALOG OF ARTIFICIAL GAS GOVERNORS
As Your Requirements May Be

LOW PRESSURE NATURAL GAS REGULATOR

**PACIFIC COAST REPRESENTATIVE:**

**C. B. BABCOCK COMPANY - 768 Mission St., San Francisco, Calif.**

The Tendency Today Is Toward .....

# Cast Iron Gas Meters

The Sprague Meter is the only cast iron gas meter that has proven successful for both Natural and Artificial Gas.

Installing Sprague Meters is protection against extra expense and worry should you decide to manufacture gas.

## THE SPRAGUE METER COMPANY

BRIDGEPORT. CONN.

BRANCH WAREHOUSES:

LOS ANGELES, CALIF.
116 So. Anderson Street

DAVENPORT, IOWA

428 Sutter St.,
SAN FRANCISCO, CALIF

# CLEVELAND DRY METERS

For Registering Natural and Manufactured Gas

## LARGE CAPACITY "A" METERS–Heavily Built

Especially Successful for Natural Gas Use

## TYPE "B" METERS For Slow Speed Operation

## PREPAYMENT METERS

## CLEVELAND GAS METER CO.

718 MISSION STREET
SAN FRANCISCO, CAL.

2170-2180 EAST 65th STREET
CLEVELAND, OHIO

# ? *Is There a Hospital in Your Territory* ?

STATE HOSPITAL FOR INSANE, WARREN, PA.

## NOTE THIS PARTIAL LIST OF "INCINERITE" SALES

**These have recently been made to Hospitals. We advertise in Hospital Magazines. Gas Companies can take advantage of this publicity. Sell "INCINERITES" to EVERY Hospital on your mains.**

| | |
|---|---|
| Wm. Memorial Research Laboratory *Pittsburgh, Pa.* | One No. 3 |
| St. Lukes Hospital *New Bedford, Mass.* | Two No. 2 |
| Joseph Lawrence *New London, Conn.* | One No. 4 |
| New York Skin and Cancer Hospital *New York* | One No. 4 |
| Buffalo State Hospital *Buffalo, N. Y.* | Two No. 2 |
| The Cherrington Hospital *Logan, Ohio* | One No. 4 |
| U. S. Soldiers Home *Washington, D. C.* | One No. 102 |
| City Hospital *Bellaire, Ohio* | One No. 3 |
| Home of Good Samaritan *Brookline, Mass.* | One No. 4 |
| District Tuberculosis Hospital *Lima, Ohio* | One No. 3 |
| Metropolitan Hospital *New York City* | Three No. 2 |
| Dr. C. R. Holmes Private Hospital *Cincinnati, Ohio* | One No. 2, One No. 4, One No. 1 |
| Norway Sanitarium *Indianapolis, Ind.* | One No. 4 |
| Anderson County Hospital *Anderson, S. C.* | One No. 2 |
| Memorial Hospital *Fremont, Ohio* | One No. 4 |
| Roosevelt Hospital *Philadelphia, Pa.* | One No. 4 |
| Montifiore Hospital *Pittsburgh* | One No. 4 |
| St. Lukes Home *New Bedford, Mass.* | One No. 102 |
| Newark Private Hospital *Newark, N. J.* | One No. 3 |
| Grant Hospital *Marion, Ind.* | Three No. 200 |
| Mansfield General Hospital *Mansfield, Ohio* | Two No. 102, One No. 2 |
| The Johns Hopkins Hospital *Baltimore, Md.* | One No. 3 |
| Trull Hospital *Biddeford, Me.* | One No. 2 |
| St. Lukes Hospital *Fargo, N. D.* | Four No. 102 |
| St. Stanilus Nuns Home *Cleveland, Ohio* | One No. 200 |
| Seaside Hospital *Long Beach, Calif.* | One No. 3 |
| Sisters Hospital *Lima, Ohio* | Six No. 100, One No. 3 |
| Mercy Hospital *Toledo, Ohio* | One No. 101, Five No. 100, One No. 3 |
| Manufacturers Hospital *Detroit, Mich.* | One No. 4 |
| Detroit Tuberculosis Hospital *Detroit, Mich.* | One No. 4 |
| Harper Hospital (West Branch) *Detroit, Mich.* | One No. 3 |
| East Jefferson Sanitarium *Detroit, Mich.* | One No. 3 |
| Solvay General Hospital *Detroit, Mich.* | One No. 3 |
| Municipal Tuberculosis Hospital *Peoria, Ill.* | Two No. 102 |
| St. Vincents Hospital *Sioux City, Iowa* | Three No. 3, One No. 2 |

**SPECIAL CO-OPERATION GLADLY GIVEN ON HOSPITAL PROSPECTS**
**BUT, don't overlook the fact that "INCINERITES" are also sold to Residences, Apartments, Schools, Restaurants, Clubs, factories, etc.**

**E. C. STEARNS & CO., SYRACUSE, N. Y.**

# WELDING OUTFITS
# CUTTING OUTFITS

*"No Gas Department can possibly be complete without a welding outfit from this time on."*

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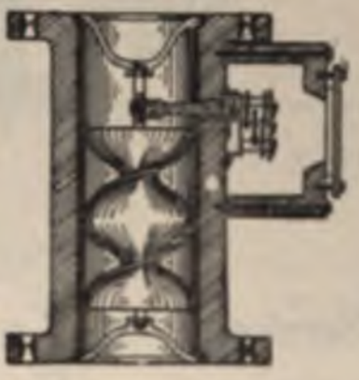

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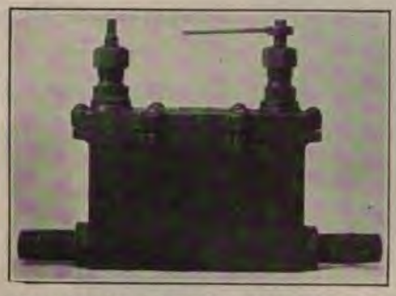

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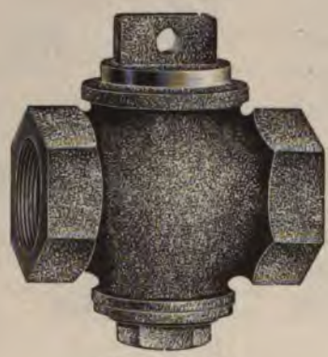

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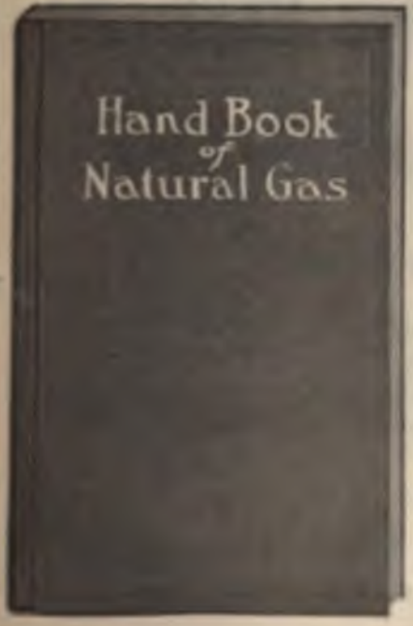


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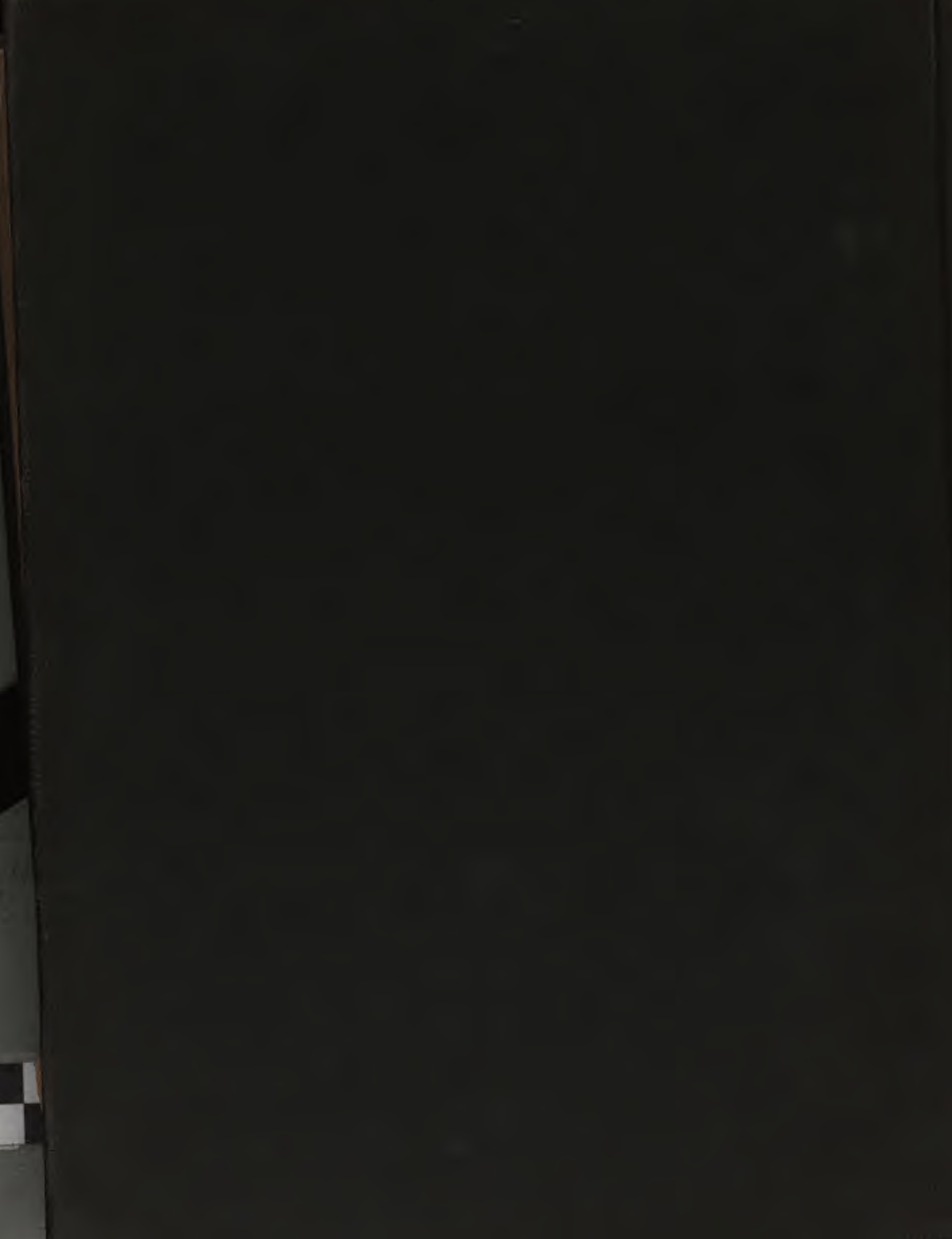
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